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Service Manual

ORDER NO.
RRV3380

DVD RECORDER

DVR-440H-AV
DVR-440H-K

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Please confirm 3rd & 4th alphabetical letters.
DVR-440H-AV	WYXK5	AC220-240V	2	&&UK######$$
DVR-440H-AV	WYXV5	AC220-240V	2	&&DL######$$
DVR-440H-K	WYXK5	AC220-240V	2	&&UK######$$
DVR-440H-K	WYXV5	AC220-240V	2	&&DL######$$
DVR-440H-K	WYXVRE5	AC220-240V	5	&&DL######$$

● This service manual should be used together with the following manual(s):

Model	Order No.	Remarks
DVR-640H-AV/WYXK5	RRV3368	

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
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1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56×10^1 → 561 .... RD1/4PU $\boxed{5}\boxed{6}\boxed{1}$ J
47k Ω → 47×10^3 → 473 .... RD1/4PU $\boxed{4}\boxed{7}\boxed{3}$ J
0.5 Ω → R50 .... RN2H $\boxed{R}\boxed{5}\boxed{0}$ K
1 Ω → 1R0 .... RS1P $\boxed{1}\boxed{R}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^1 → 5621 .... RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

■ CONTRAST TABLE

DVR-440H-AV/WYXK5, /WYXV5, DVR-440H-K/WYXK5, /WYXV5, /WYXVRE5 types and DVR-540H-S/WYXK5 are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.						Remarks
			DVR-540H-S /WYXK5	DVR-440H-AV /WYXK5	DVR-440H-AV /WYXV5	DVR-440H-K /WYXK5	DVR-440H-K /WYXV5	DVR-440H-K /WYXVRE5	
		PACKING SECTION							
P9- 7		Polyethylene Bag	VHL1051	VHL1051	VHL1088	VHL1051	VHL1088	VHL1088	
P9- 8		HDD Caution 8L B	VRR1046	VRR1046	VRR1062	VRR1046	VRR1062	VRR1062	
P9- 9		HDD Caution 8L	VRR1047	VRR1047	VRR1063	VRR1047	VRR1063	VRR1063	
P9-10		Front Pad	VHA1404	VHA1404	VHA1415	VHA1404	VHA1415	VHA1415	
P9-11		Rear Pad	VHA1405	VHA1405	VHA1416	VHA1405	VHA1416	VHA1416	
P9-12		Packing Case	VHG2698	VHG2718	VHG2756	VHG2725	VHG2731	VHG2733	
P9-13		Mirror Sheet	VHL1107	VHL1107	VHL1095	VHL1107	VHL1095	VHL1095	
P9-14		WEEE Label	VRW2231	Not used	Not used	VRW2231	VRW2231	VRW2231	
P9-15		Remote Control Unit	VXX3129	Not used	Not used	VXX3129	VXX3129	VXX3129	
P9-16		Battery Cover	VZN1004	Not used	Not used	VZN1004	VZN1004	VZN1004	
P9-17		Top Cover	VZN1009	Not used	Not used	VZN1009	VZN1009	VZN1009	
P9-18	NSP	Dry Cell Battery (R6P,AA)	VEM1010	Not used	Not used	VEM1010	VEM1010	VEM1010	
P9-20		Operating Instructions (French)	VRC1320	Not used	Not used	VRC1320	VRC1320	Not used	
P9-21		Operating Instructions (German)	VRC1321	Not used	Not used	VRC1321	VRC1321	Not used	
P9-22		Operating Instructions (Italian)	VRC1322	Not used	Not used	VRC1322	VRC1322	Not used	
P9-23		Operating Instructions (Dutch)	VRC1323	Not used	Not used	VRC1323	VRC1323	Not used	
P9-24		Operating Instructions (Spanish)	VRC1324	Not used	Not used	VRC1324	VRC1324	Not used	
P9-26		Operating Instructions (Russian)	Not used	Not used	Not used	Not used	Not used	VRC1333	
		EPG Caution Card	Not used	Not used	Not used	Not used	Not used	VRR1066	
		EXTERIOR SECTION							
P11- 9		HDD160G ST3160022R	VXF1086	Not used	Not used	Not used	Not used	Not used	
P11- 9		HDD80G WD800BBJKC	Not used	VXF1066	VXF1066	VXF1066	VXF1066	VXF1066	
P11-24		Rear Panel	VNA2894	VNA2902	VNA2930	VNA2905	VNA2912	VNA2914	
P11-33		Bonnet Case	VXX3105	VXX3105	VXX3105	VXX3145	VXX3145	VXX3145	
P11-43		Pioneer Name Plate	VAM1148	VAM1148	VAM1148	VAM1153	VAM1153	VAM1153	
P11-54		Screw (for Bonnet)	BSZ30P040FTC	BSZ30P040FTC	BSZ30P040FTC	BSZ30P060FBN	BSZ30P060FBN	BSZ30P060FBN	
		FRONT PANEL SECTION							
P13-10		Main Key	VNK5908	VNK5908	VNK5908	VNK6043	VNK6043	VNK6043	
P13-11		Function Key	VNK5936	VNK5936	VNk5936	VNK6044	VNK6044	VNK6044	
P13-12		Front Panel	VNk5923	VNk5923	VNK5923	VNK6039	VNk6039	VNK6039	
P13-13		Center Key	VNK6025	VNK6025	VNK6025	VNK6093	VNK6093	VNK6093	
P13-14		FL Lens PTD	VXA2740	VXA2786	VXA2786	VXA2786	VXA2786	VXA2786	
P13-15		Door PTD	VXA2774	VXA2774	VXA2774	VXA2800	VXA2800	VXA2800	

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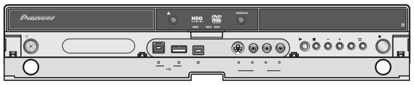
Service Manual


DVR-640H-AV

ORDER NO.
RRV3368

DVD RECORDER

DVR-640H-AV
DVR-540H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	**Serial No.** Please confirm 3rd & 4th alphabetical letters.
DVR-640H-AV	WYXK5	AC220-240V	2	&&UK######$$
DVR-640H-AV	WYXV5	AC220-240V	2	&&DL######$$
DVR-540H-S	WYXK5	AC220-240V	2	&&UK######$$
DVR-540H-S	WYXV5	AC220-240V	2	&&DL######$$
DVR-540H-S	WYXVRE5	AC220-240V	5	&&DL######$$

- **When servicing this model, some service procedures may reset the customer settings to the factory default settings. Make sure to explain this to the customer.**

An HDD (Hard Disc Drive) is mounted in this product.
The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.3 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.
When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible.
Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
The user must be made aware that all recorded data are deleted if the HDD is intialized.

For details, refer to "Important Check Points for Good Servicing" .

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SAFETY INFORMATION

■ LABEL CHECK

IMPORTANT

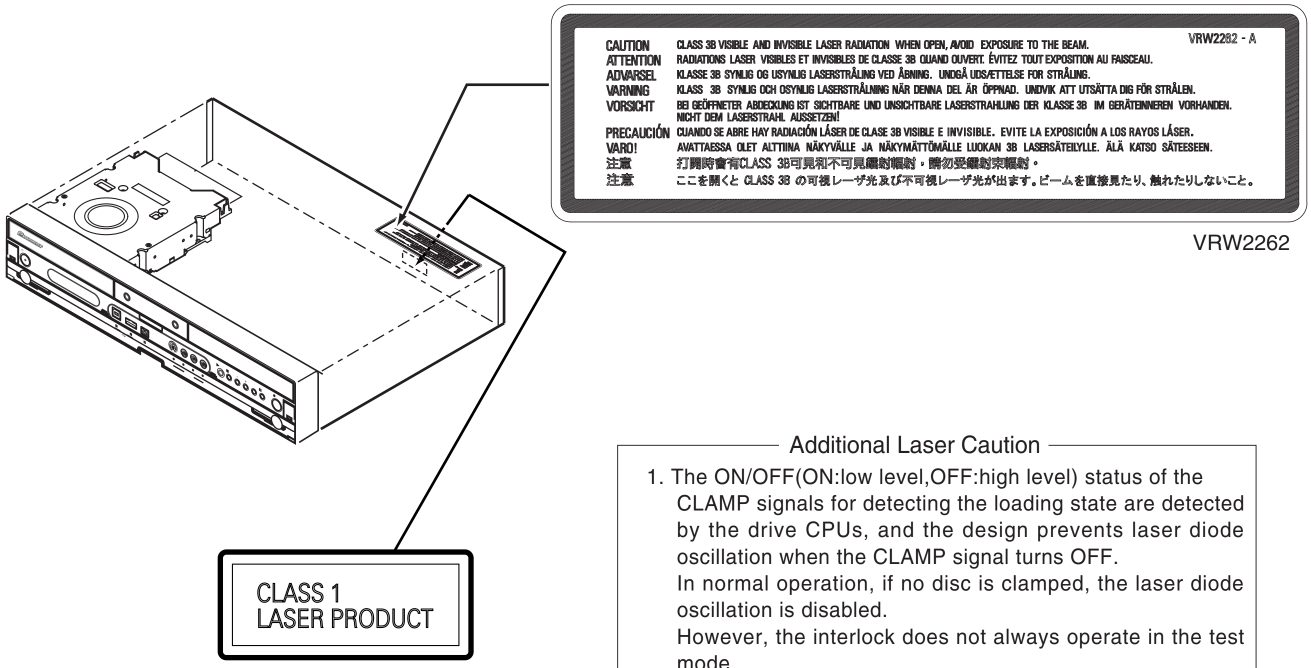
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 100 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 770 - 810 nm



VRW2262 - A

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION	RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL	KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT	BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTEINNEREN VORHANDEN. NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN	CUANDO SE ABRE HAY RADIACIÓN LÁSER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LÁSER.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
注意	打開時會有CLASS 3B可見和不可見鐳射輻射，請勿受鐳射束輻射。
注意	ここを開くと CLASS 3B の可視レーザ光及び不可視レーザ光が出ます。ビームを直接見たり、触れたりしないこと。

VRW2262

CLASS 1
LASER PRODUCT

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

General

Power requirements . . . . . 220 V to 240 V, 50 Hz / 60 Hz
Power consumption
DVR-640H-AV . . . . 43 W
DVR-540H-S . . . . 40 W
(DVR-440H-S/DVR-440H-K . . . . 39 W)
Power consumption in standby mode . . . . 0.61 W
(Front panel display: off)
Weight
DVR-640H-AV. . . . . 4.4 kg
DVR-540H-S . . . . .4.3 kg
(DVR-440H-S/DVR-440H-K . . . . 4.3 kg)
Dimensions . . . . 420 mm (W) x 69 mm (H) x 318 mm (D)
Operating temperature . . . .+5 °C to +35 °C
Operating humidity . . . . .5 % to 85 %
(no condensation)
TV system . . . . PAL/SECAM/
NTSC (external input only)

Readable discs
DVD-Video, DVD-RW, DVD-R, DVD+R, DVD+RW, DVD-RAM, Video CD, Super VCD, CD, CD-R/-RW (WMA, MP3, JPEG, CD-DA)

Recording discs and formats
DVD-R/RW: VR mode and Video mode
DVD+R/+RW: +VR mode
DVD-RAM: VR mode
DVD-R DL: VR mode and Video mode
DVD+R DL: +VR mode

Video recording format
Sampling frequency . . . . 13.5 MHz
Compression format. . . . . MPEG
Audio recording format
Sampling frequency . . . . .48 kHz
Compression format . . . . Dolby Digital or Linear PCM
(uncompressed)

Recording time
HDD
DVR-640H-AV/DVR-540H-S (160 GB)
Fine (XP) . . . . .Approx. 34 h
Standard Play (SP) .Approx. 68 h
Long Play (LP) . . . . Approx. 136 h
Extended Play (EP) . . . . Approx. 204 h
Super Long Play (SLP) . . . . Approx. 272 h
Super Extended Play (SEP) . . . . .Approx. 340 h
Manual Mode (MN). . . . . Approx. 34 h to 455 h

DVR-440H-S/K (80 GB) (Reference)
Fine (XP). . . . . .Approx. 17 h
Standard Play (SP) .Approx. 34 h
Long Play (LP) . . . . Approx. 68 h
Extended Play (EP) . . . . Approx. 102 h
Super Long Play (SLP) . . . . .Approx. 136 h
Super Extended Play (SEP) . . . . .Approx. 170 h
Manual Mode (MN). . . . . Approx. 17 h to 227 h

DVD-R/-RW, DVD+R/+RW, DVD-RAM
Fine (XP) . . . . Approx. 1 h
Standard Play (SP) . . . . Approx. 2 h
Long Play (LP) . . . . .Approx. 4 h
Extended Play (EP) . . . . .Approx. 6 h
Super Long Play (SLP) . . . . Approx. 8 h
Super Extended Play (SEP) . . . . .Approx. 10 h
(DVD-R/-RW, DVD-RAM only)
Manual Mode (MN)
DVD-R/-RW/-RAM . . . . Approx. 1 h to 13 h
DVD+R/+RW . . . . Approx. 1 h to 8 h

DVD-R DL/DVD+R DL
Fine (XP) . . . . .Approx. 1 h 51 m
Standard Play (SP) . . . . .Approx. 3 h 35 m
Long Play (LP) . . . . Approx. 7 h 11 m
Extended Play (EP) . . . . Approx. 10 h 46 m
Super Long Play (SLP) . . . . .Approx. 14 h 21 m
Super Extended Play (SEP) . . . . Approx. 17 h 57 m
(DVD-R DL only)
Manual Mode (MN)
DVD-R DL . . . . Approx. 1 h 51 m to 24 h
DVD+R DL . . . . Approx. 1 h 51 m to 14 h 21 m

Timer

Programs . . . . .1 month/32 programs
Clock . . . . Quartz lock (24-hour digital display)

Tuner

Receivable channels

	SECAM B/G PAL B/G		PAL I	
	Frequency	Channel	Frequency	Channel
VHF (low)	47 MHz to 89 MHz	E2 to E4 X to Z	44 MHz to 89 MHz	A to C X to Z
VHF (high)	104 MHz to 300 MHz	E5 to E12 S1 to S20 M1 to M10 U1 to U10	104 MHz to 300 MHz	D to J 11, 13 S1 to S20
Hyper	302 MHz to 470 MHz	S21 to S41	302 MHz to 470 MHz	S21 to S41
UHF	470 MHz to 862 MHz	E21 to E69	470 MHz to 862 MHz	E21 to E69

	SECAM L		SECAM D/K PAL D/K	
	Frequency	Channel	Frequency	Channel
VHF (low)	49 MHz to 65 MHz	FB, FC1, FC	49 MHz to 94 MHz	R1 to R5
VHF (high)	104 MHz to 300 MHz	F1 to F6 B to Q	104 MHz to 300 MHz	R6 to R12 S1 to S20
Hyper	300 MHz to 470 MHz	S21 to S41	302 MHz to 470 MHz	S21 to S41
UHF	470 MHz to 862 MHz	21 to 69	470 MHz to 862 MHz	E21 to E69

STEREO
B/G - A2
I - NICAM
L - NICAM
B/G - NICAM
D/K - NICAM

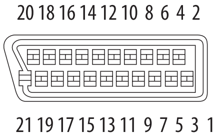
Input/Output

VHF/UHF antenna input/output terminal	VHF/UHF set 75Ω (IEC connector)
Video input	Input 2 (front)
Input level	1 Vp-p (75Ω)
Jacks	AV connector 2 (Input 1), RCA jack (Input 2)
Video output	AV1, Output
Output level	1 Vp-p (75Ω)
Jacks	AV connector (AV1) RCA jack (Output)
S-Video input	Input 2 (front)
Y (luminance) - Input level	1 Vp-p (75Ω)
C (colour) - Input level	300 mVp-p (75Ω)
Jacks	AV connector 2 (Input 1), 4 pin mini DIN (Input 2)
S-Video output	AV1, Output
Y (luminance) - Output level	1 Vp-p (75Ω)
C (colour) - Output level	300 mVp-p (75Ω)
Jacks	AV connector 1 (AV1), 4 pin mini DIN (Output)
Component video output	
Output level	Y: 1.0 Vp-p (75Ω) P_B, P_R: 0.7 Vp-p (75Ω)
Jacks	RCA jacks
RGB input	
Input level	0.7 Vp-p (75Ω)
Jacks	AV connector 2 (Input 1)
RGB output	
Output level	0.7 Vp-p (75Ω)
Jacks	AV connector 1 (AV1)
Audio input	Input 2 (front) L/R
Input level	
During audio input	2 V rms (Input impedance: more than 22 kΩ)
Jacks	AV connector 2 (Input 1), RCA jacks (Input 2)
Audio output	AV1, Output
During audio output	2 V rms (Output impedance: less than 1.5 kΩ)
Jacks	AV connector 1 (AV1), RCA jacks (Output)
Control input	Mini jack
Digital audio ouptut	Coaxial
G-LINK™	Mini jack

AV Connectors (21-pin connector assignment)

AV connector input/output	21-pin connector

This connector provides the video and audio signals for connection to a compatible colour TV or monitor.



PIN no.	AV1(RGB)-TV / AV2(INPUT 1)
1	Audio 2/R out / Audio 2/R out
2	- / Audio 2/R in
11	G out / G in
3	Audio 1/L out / Audio 1/L out
6	- / Audio 1/L in
15	R or C out / R or C in
4	GND
17	GND
7	B out / B in
19	Video out or Y out / Video out
20	- / Video in or Y in
8	Status
21	GND

Supplied accessories

Remote control	1
Dry cell batteries (AA/R6P)	2
Audio / Video cable (red/white/yellow)	1
G-LINK™ cable	1
RF antenna cable	1
Power cable	1
Operating Instructions	
Warranty card	1

Note: The specifications and design of this product are subject to change without notice, due to improvement.

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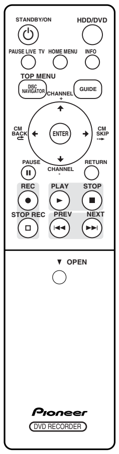
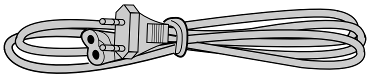
● Accessories

Except DVR-640H-AV

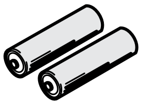
- Remote control ×1
  (VXX3129)


STANDBY/ON
HDD/DVD
PAUSE LIVE TV
HOME MENU
INFO
TOP MENU
DISC NAVIGATOR
CHANNEL
GUIDE
CM BACK
ENTER
CM SKIP
PAUSE
CHANNEL
RETURN
REC
PLAY
STOP
STOP REC
PREV
NEXT
OPEN
Pioneer
DVD RECORDER

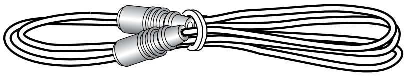
- Power cable ×1
  (ADG1127 : WYXK5, WYXV5,
  WYXVRE5 types)



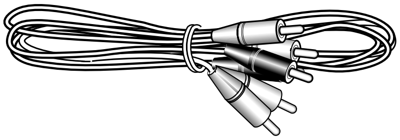
- Dry cell batteries ×2
  (AA/R6P)



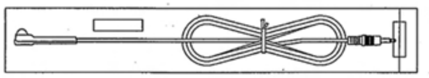
- RF antenna cable(PAL) ×1
  (VDE1075)



- Audio / Video cable(1.5m) ×1
  (red/white/yellow)
  (VDE1077)



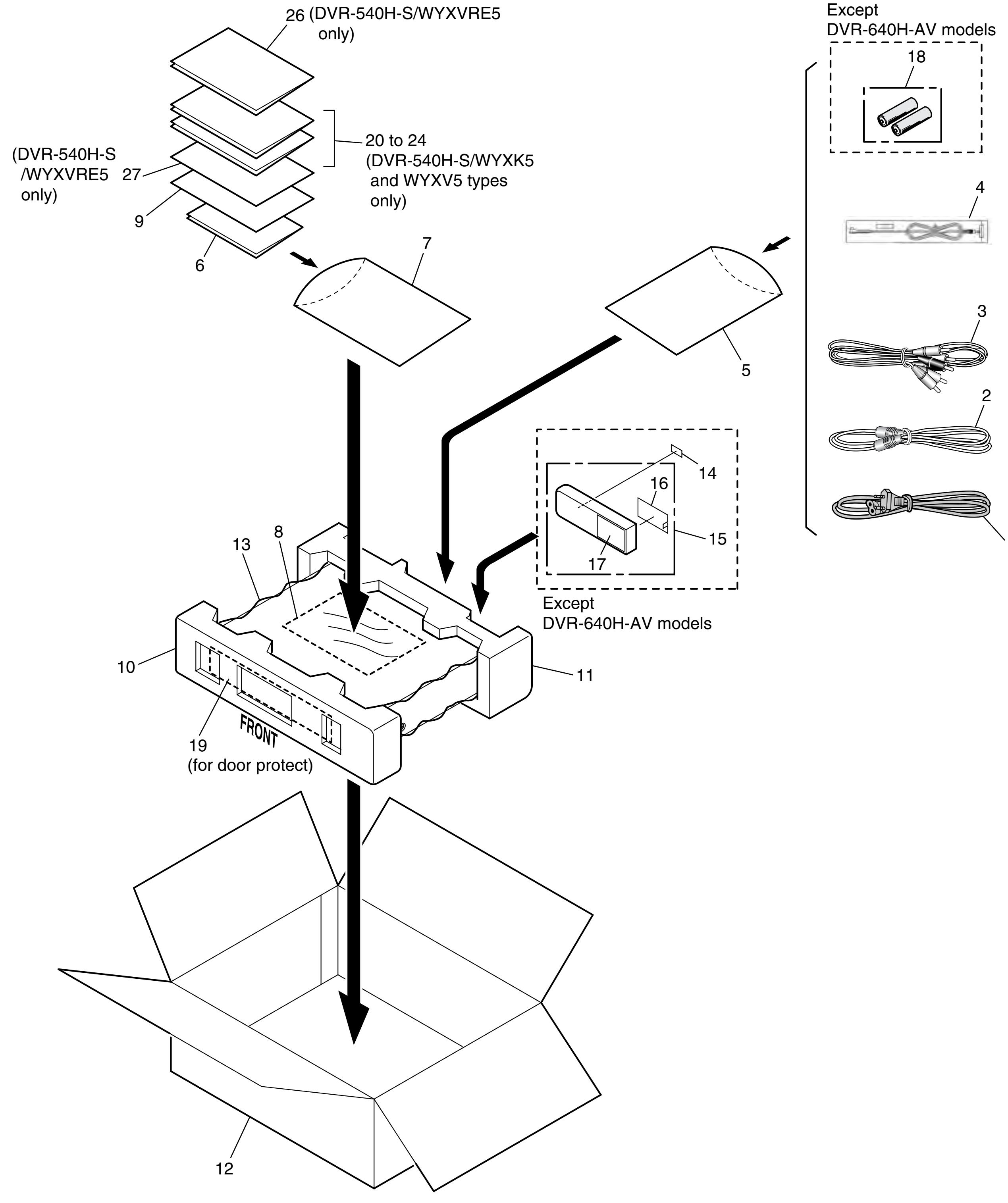
- G-Link Cable (3m) ×1
  (VDX1010)



2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The* ⚠ *mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to* ▼ *mark on product are used for disassembly.*
● *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING


26 (DVR-540H-S/WYXVRE5 only)
20 to 24 (DVR-540H-S/WYXK5 and WYXV5 types only)
(DVR-540H-S /WYXVRE5 only) 27
9
6
7
5
Except DVR-640H-AV models
18
4
3
2
1
14
16
15
17
Except DVR-640H-AV models
13
8
10
11
FRONT
19 (for door protect)
12

(1) PACKING SECTION PARTS LIST

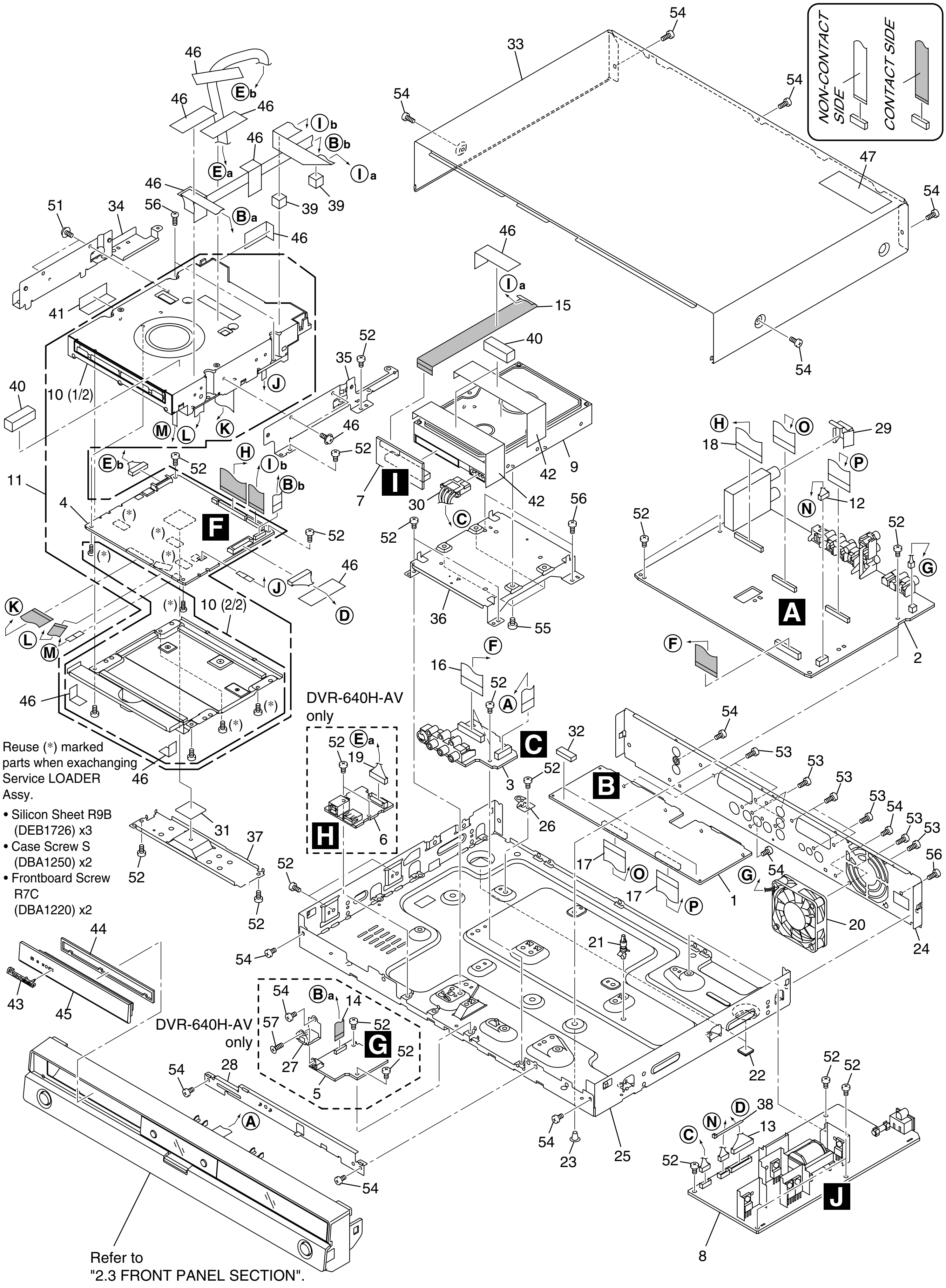
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
	2	RF Antenna Cable (PAL)	VDE1075
	3	Audio/Video Cable (1.5m)	VDE1077
	4	G-Link Cable (3m)	VDX1010
	5	Polyethylene Bag B5	VHL1088
NSP	6	Warranty Card	ARY7065
	7	Polyethylene Bag	See Contrast table (2)
NSP	8	HDD Caution 8L B	See Contrast table (2)
NSP	9	HDD Caution 8L	See Contrast table (2)
	10	Front Pad	See Contrast table (2)
	11	Rear Pad	See Contrast table (2)
	12	Packing Case	See Contrast table (2)
	13	Mirror Sheet	See Contrast table (2)
	14	WEEE Label	See Contrast table (2)
	15	Remote Control Unit	See Contrast table (2)
	16	Battery Cover	See Contrast table (2)
	17	Top Cover	See Contrast table (2)
NSP	18	Dry Cell Battery (R6P, AA)	See Contrast table (2)
	19	Mirror Sheet	VHL1104
	20	Operating Instructions	See Contrast table (2)
	21	Operating Instructions	See Contrast table (2)
	22	Operating Instructions	See Contrast table (2)
	23	Operating Instructions	See Contrast table (2)
	24	Operating Instructions	See Contrast table (2)
	25	Operating Instructions	See Contrast table (2)
	26	Operating Instructions	See Contrast table (2)
	27	EPG Caution Card	See Contrast table (2)

(2) CONTRAST TABLE

DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5 and WYXVRE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
⚠	1	Power Cord	ADG1127	ADG1127	ADG1127	ADG1127	ADG1127
	7	Polyethylene Bag	VHL1051	VHL1088	VHL1051	VHL1088	VHL1088
NSP	8	HDD Caution 8L B	VRR1046	VRR1062	VRR1046	VRR1062	VRR1062
NSP	9	HDD Caution 8L	VRR1047	VRR1063	VRR1047	VRR1063	VRR1063
	10	Front Pad	VHA1404	VHA1415	VHA1404	VHA1415	VHA1415
	11	Rear Pad	VHA1405	VHA1416	VHA1405	VHA1416	VHA1416
	12	Packing Case	VHG2719	VHG2757	VHG2698	VHG2683	VHG2734
	13	Mirror Sheet	VHL1107	VHL1095	VHL1107	VHL1095	VHL1095
	14	WEEE Label	Not used	Not used	VRW2231	VRW2231	VRW2231
	15	Remote Control Unit	Not used	Not used	VXX3129	VXX3129	VXX3129
	16	Battery Cover	Not used	Not used	VZN1004	VZN1004	VZN1004
	17	Top Cover	Not used	Not used	VZN1009	VZN1009	VZN1009
NSP	18	Dry Cell Battery (R6P, AA)	Not used	Not used	VEM1010	VEM1010	VEM1010
	20	Operating Instructions (French)	Not used	Not used	VRC1320	VRC1320	Not used
	21	Operating Instructions (German)	Not used	Not used	VRC1321	VRC1321	Not used
	22	Operating Instructions (Italian)	Not used	Not used	VRC1322	VRC1322	Not used
	23	Operating Instructions (Dutch)	Not used	Not used	VRC1323	VRC1323	Not used
	24	Operating Instructions (Spanish)	Not used	Not used	VRC1324	VRC1324	Not used
	25	Operating Instructions (English)	Not used	Not used	Not used	Not used	Not used
	26	Operating Instructions (Russian)	Not used	Not used	Not used	Not used	VRC1333
	27	EPG Caution Card	Not used	Not used	Not used	Not used	VRR1066

2.2 EXTERIOR SECTION


NON-CONTACT SIDE
CONTACT SIDE
1
2
3
4
5
6
7
8
9
10 (1/2)
10 (2/2)
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
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56
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A
B
C
F
G
H
I
J
Ea
Eb
Ia
Ib
Ba
Bb
(*)

DVR-640H-AV only

DVR-640H-AV only

Reuse (*) marked parts when exachanging Service LOADER Assy.

- Silicon Sheet R9B (DEB1726) x3
- Case Screw S (DBA1250) x2
- Frontboard Screw R7C (DBA1220) x2

Refer to "2.3 FRONT PANEL SECTION".

(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	SCRB Assy	VWV2206
	2	TUJB Assy (for service)	See Contrast table (2)
	3	FJKB Assy (for service)	VXX3113
	4	MAIN Assy (for service)	See Contrast table (2)
	5	DVJB Assy	See Contrast table (2)
	6	USBB Assy	See Contrast table (2)
	7	ATAB Assy (for service)	VXX3140
⚠	8	POWER SUPPLY Unit	VWR1399
	9	HDD 160GB ST3160022RS	VXF1086
	10	LOADER Assy (for service)	VXX3156
NSP	11	Service LOADER MAIN	See Contrast table (2)
	12	Connector Assy	PF05PP-S07
	13	Connector Assy	PF13PP-S22
	14	Flexible Cable 24P	See Contrast table (2)
	15	Flexible Cable 40P	VDA2112
	16	Flexible Cable 23P	VDA2115
	17	Flexible Cable 29P	VDA2117
	18	Flexible Cable 35P	VDA2118
	19	Housing USB (MAIN)	See Contrast table (2)
	20	DC Fan Motor 60	VXM1125
	21	PCB Support	AEC1215
	22	Rubber Foot	VEB1349
NSP	23	PC Support	VEC1749
	24	Rear Panel	See Contrast table (2)
NSP	25	Chassis	VNB1055
NSP	26	PCB Base	VNE2378
	27	DV Angle	See Contrast table (2)
NSP	28	Bridge	VNE2429
	29	Earth Plate TU	VBK1162
	30	Housing Assy 4P	VKP2357

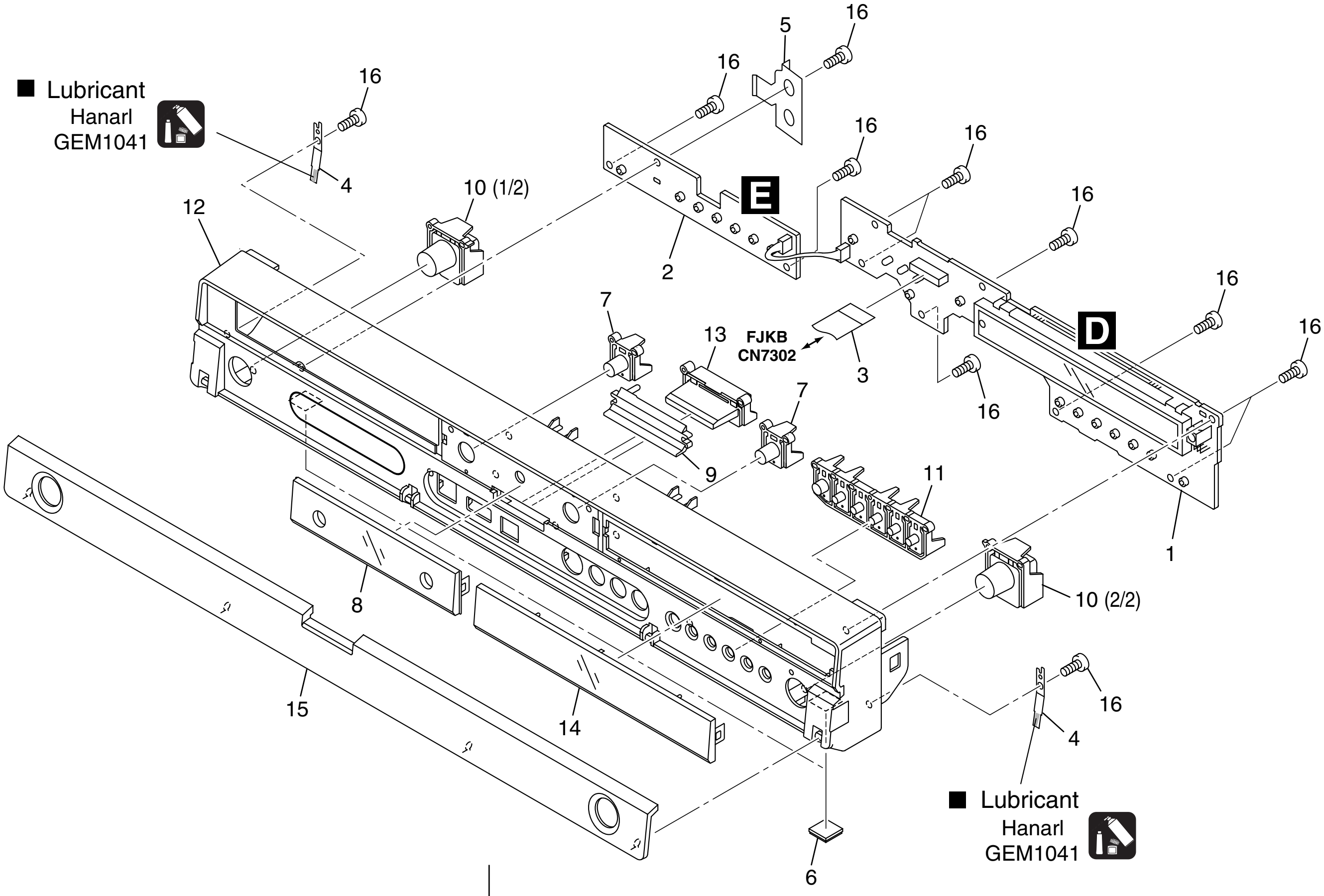
Mark	No.	Description	Part No.
	31	Radiation Sheet (Silicone)	VEB1360
	32	Rubber Spacer	VEB1378
	33	Bonnet	VXX3105
NSP	34	Writer Stay L	VNE2421
NSP	35	Writer Stay R	VNE2422
NSP	36	HDD Stay	VNE2423
	37	Heatsink	VNH1077
NSP	38	Binder (BK-1)	ZCA-BK1
	39	Rubber Spacer B	VEB1380
	40	Gasket 30 x 10T	VEC2522
	41	Aluminum Tape 25 x 25	VEF1060
	42	Aluminum Tape 180 x 25	VEF1065
	43	Pioneer Name Plate	VAM1148
	44	Tray Sheet	VEC2500
	45	Tray Panel	VNK5910
NSP	46	Tape	ZTA-156A-19
	47	Laser Caution Label	VRW2262
	48	•••••	
	49	•••••	
	50	•••••	
	51	Screw	AMZ30P040FTC
	52	Screw	BBZ30P060FTC
	53	Screw	BPZ30P080FTC
	54	Screw	BSZ30P040FTC
	55	#6-32 Screw	DBA1125
	56	Screw	PBZ30P080FTC
	57	Screw M3 x 8	See Contrast table (2)

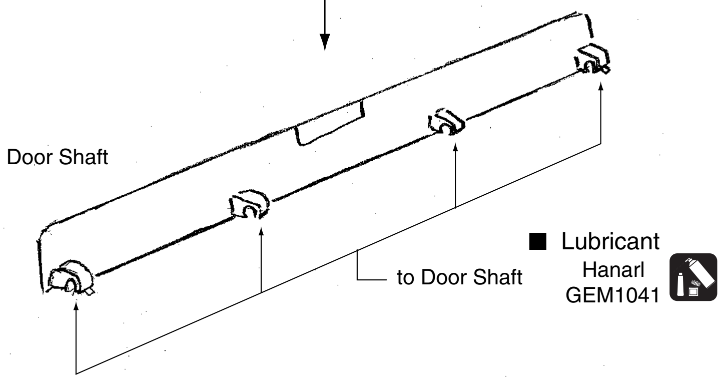
(2) CONTRAST TABLE

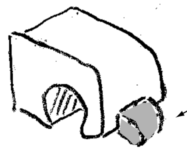
DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5, WVXK5 and WYXVRE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
	2	TUJB Assy (for service)	VXX3109	VXX3109	VXX3108	VXX3108	VXX3108
	4	MAIN Assy (for service)	VXX3157	VXX3157	VXX3159	VXX3159	VXX3159
	5	DVJB Assy	VWV2160	VWV2160	Not used	Not used	Not used
	6	USBB Assy	VWV2161	VWV2161	Not used	Not used	Not used
NSP	11	Service LOADER MAIN	VXU1001	VXU1001	VXU1002	VXU1002	VXU1002
	14	Flexible Cable 24P	VDA2111	VDA2111	Not used	Not used	Not used
	19	Housing USB (MAIN)	VKP2380	VKP2380	Not used	Not used	Not used
	24	Rear Panel	VNA2903	VNA2931	VNA2894	VNA2916	VNA2915
	27	DV Angle	VNE2426	VNE2426	Not used	Not used	Not used
	57	Screw M3 x 8	VBA1088	VBA1088	Not used	Not used	Not used

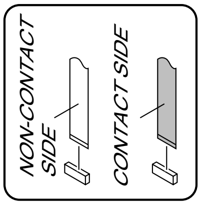
2.3 FRONT PANEL SECTION


■ Lubricant
Hanarl
GEM1041
16
5
16
16
16
16
4
12
10 (1/2)
E
2
16
16
7
13
FJKB
CN7302
3
D
16
16
7
9
11
1
8
10 (2/2)
15
14
16
4
■ Lubricant
Hanarl
GEM1041
6


Door Shaft
to Door Shaft
■ Lubricant
Hanarl
GEM1041



Paste lubricant hanarl (GEM1041) to salient points of both side of the door.


NON-CONTACT SIDE
CONTACT SIDE

(1) FRONT PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FLKY Assy (for service)	VXX3111
	2	KEYB Assy (for service)	VXX3112
	3	Flexible Cable 12P	VDA2116
	4	Door Spring	VBK1159
	5	Earth Plate	VBK1166
	6	Rubber Foot	VEB1349
	7	Sub Key	VNK5909
	8	Center Cover	VNK5911
	9	LED Lens	VNK5913
	10	Main Key	See Contrast table (2)
	11	Function Key	VNK5936
	12	Front Panel	See Contrast table (2)
	13	Center Key	See Contrast table (2)
	14	FL Lens PTD	See Contrast table (2)
	15	Door PTD	See Contrast table (2)
	16	Screw	BPZ30P080FTC

(2) CONTRAST TABLE

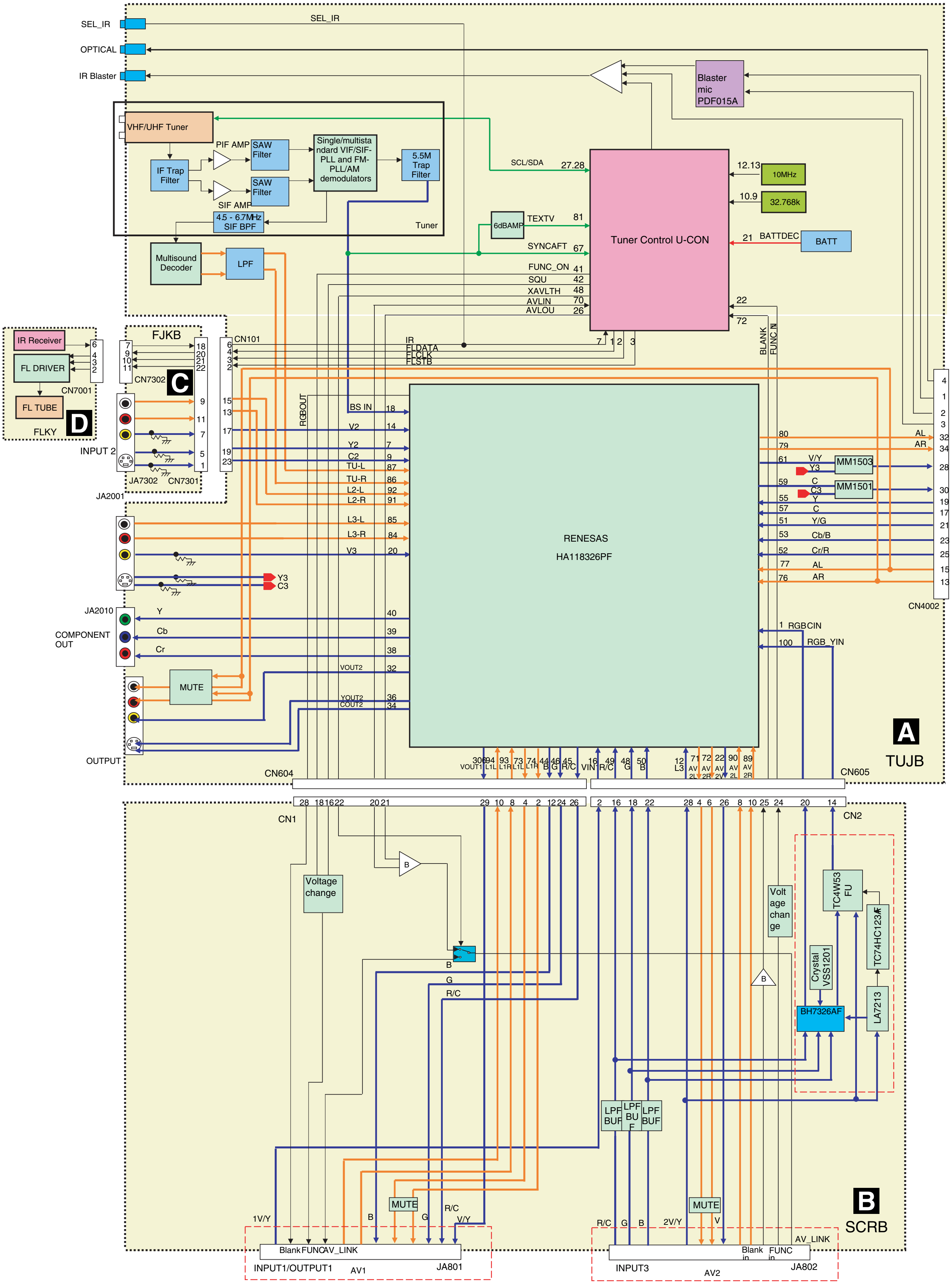
DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5, WVXK5 and WYXVRE5 are constructed the same except for the following:

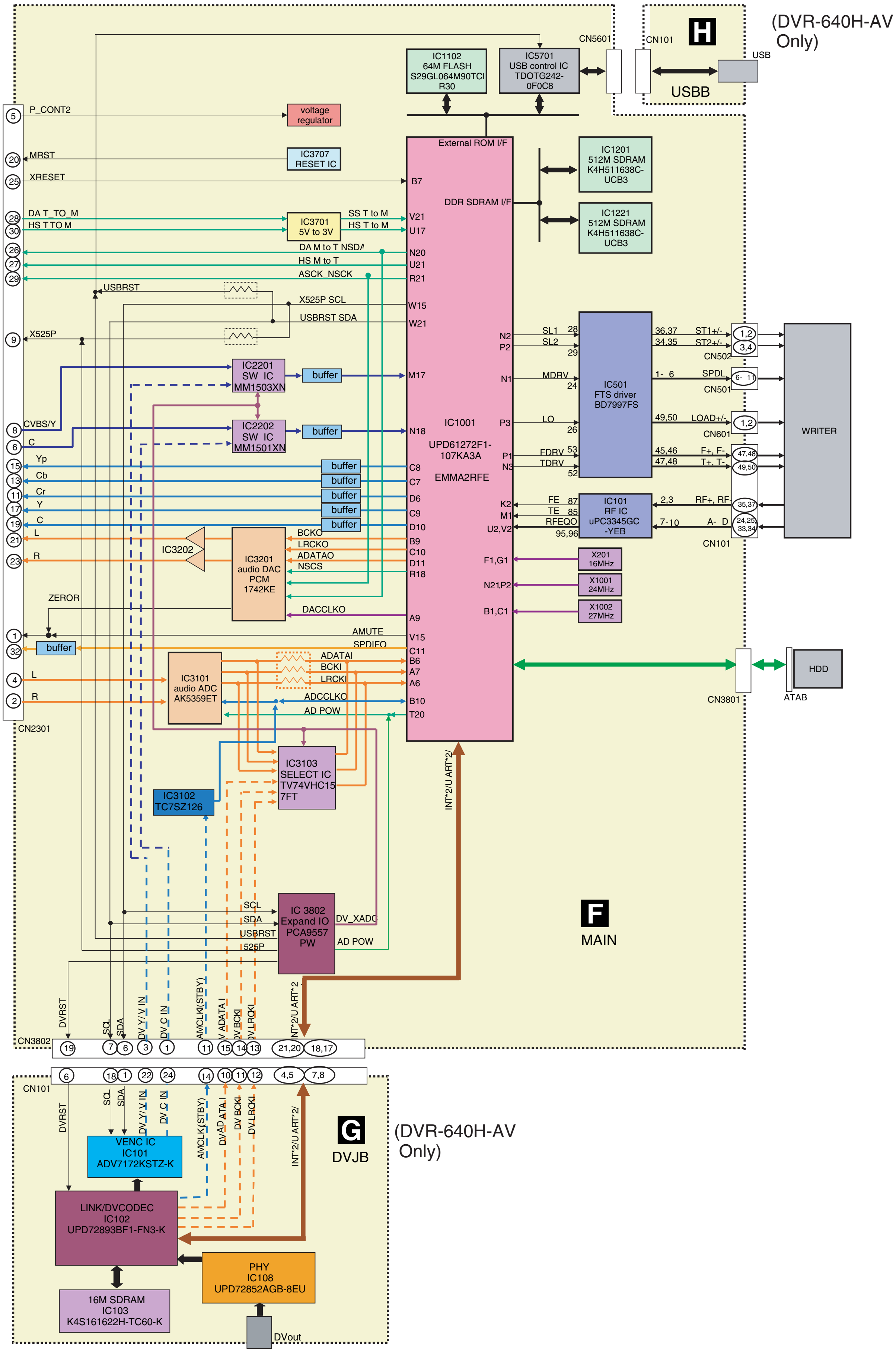
Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
	10	Main Key	VNK5925	VNK5925	VNK5908	VNK5908	VNK5908
	12	Front Panel	VNK5957	VNK5957	VNK5923	VNK5923	VNK5923
	13	Center Key	VNK6026	VNK6026	VNK6025	VNK6025	VNK6025
	14	FL Lens PTD	VXA2741	VXA2741	VXA2740	VXA2740	VXA2740
	15	Door PTD	VXA2775	VXA2775	VXA2774	VXA2774	VXA2774

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

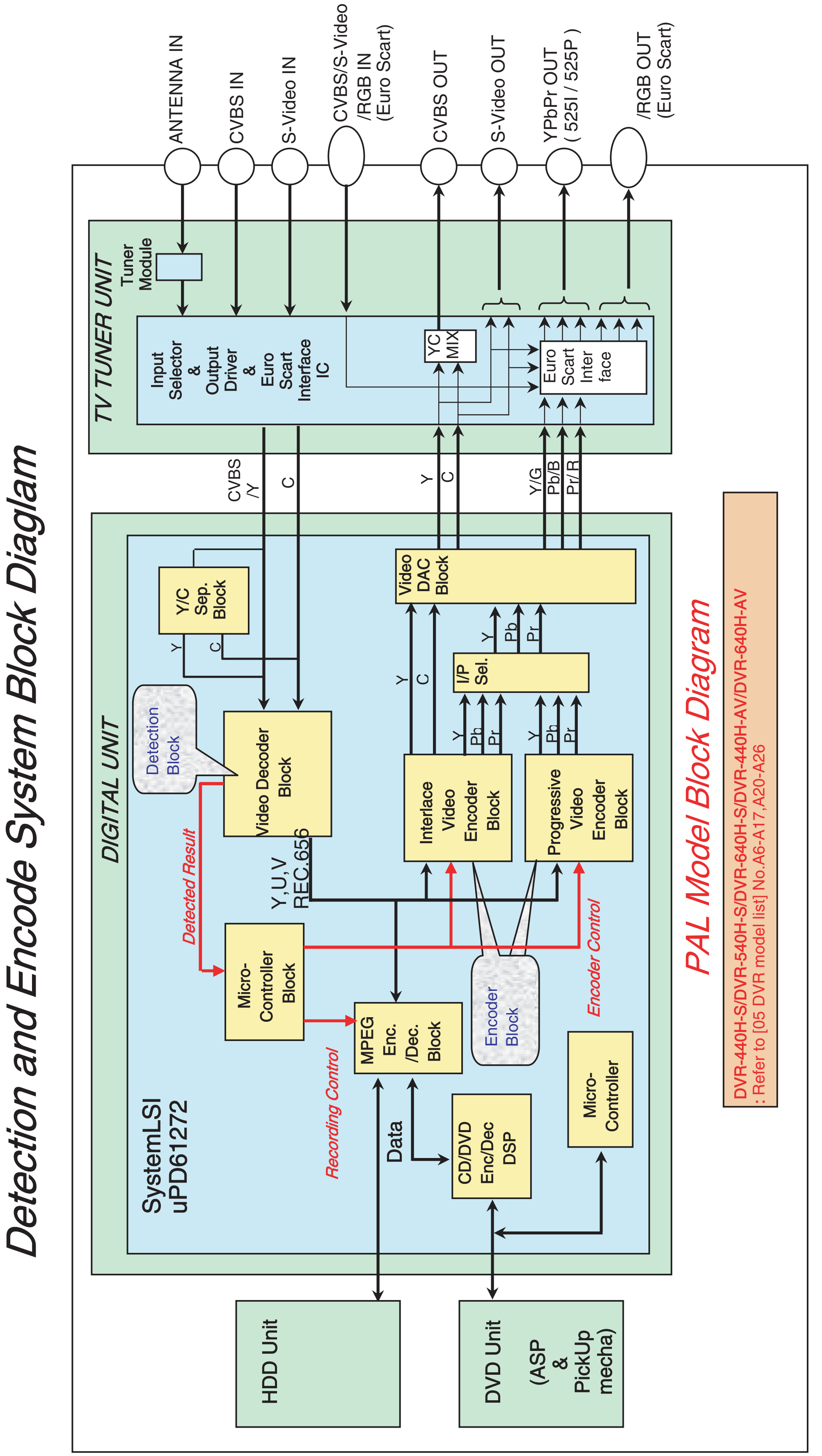
3.1.1 OVERALL BLOCK DIAGRAM


SEL_IR
OPTICAL
IR Blaster
Blaster mic PDF015A
VHF/UHF Tuner
PIF AMP
SAW Filter
IF Trap Filter
SIF AMP
Single/multistandard VIF/SIF-PLL and FM-PLL/AM demodulators
5.5M Trap Filter
4.5 - 6.7MHz SIF BPF
Tuner
Multisound Decoder
LPF
SCL/SDA
27.28
12.13
10MHz
10.9
32.768k
6dBAMP
TEXTV 81
SYNCAFT 67
FUNC_ON 41
SQU 42
XAVLTH 48
AVLIN 70
AVLOU 26
Tuner Control U-CON
21 BATTDEC
BATT
22
72
BLANK
FUNC_IN
IR Receiver
FL DRIVER
FL TUBE
CN7001
FLKY
D
FJKB
CN7302
C
INPUT 2
JA7302
CN7301
JA2001
CN101
IR
FLDATA
FLCLK
FLSTB
RGBOUT
BS IN 18
V2 14
Y2 7
C2 9
TU-L 87
TU-R 86
L2-L 92
L2-R 91
L3-L 85
L3-R 84
V3 20
Y3
C3
RENESAS
HA118326PF
JA2010
Y 40
Cb 39
Cr 38
COMPONENT OUT
MUTE
VOUT2 32
YOUT2 36
COUT2 34
OUTPUT
CN604
VOUT1 L1L L1R L1L L1R B G R/C VIN R/C G B
L3 AV2L AV2R AV2V AV2L AV2R
CN605
80 AL
79 AR
61 V/Y
MM1503
59 C
MM1501
55 Y
57 C
51 Y/G
53 Cb/B
52 Cr/R
77 AL
76 AR
CN4002
1 RGBCIN
100 RGB_YIN
A
TUJB
CN1
Voltage change
B
G
R/C
Volt age chan ge
CN2
TC4W53 FU
TC74HC123AF
Crystal VSS1201
BH7326AF
LA7213
LPF BUF
LPF BUF
LPF BUF
MUTE
MUTE
1V/Y
R/C
V/Y
2V/Y
V
Blank FUNC AV_LINK
INPUT1/OUTPUT1
AV1
JA801
Blank in
FUNC in
AV_LINK
INPUT3
AV2
JA802
B
SCRB

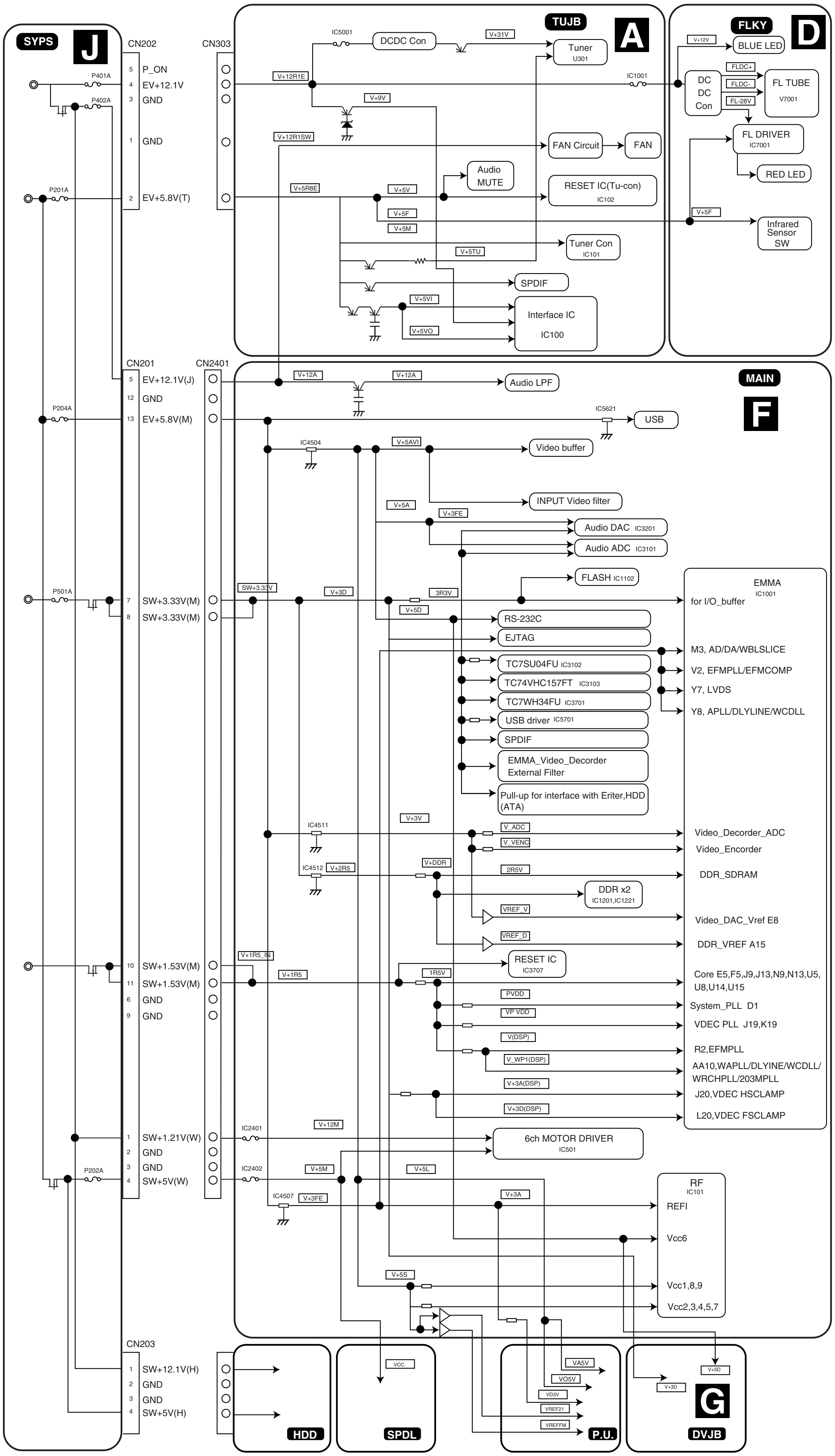


(DVR-640H-AV Only)
H
USBB
CN101
USB
CN5601
IC1102 64M FLASH S29GL064M90TCI R30
IC5701 USB control IC TDOTG242-0F0C8
External ROM I/F
DDR SDRAM I/F
IC1201 512M SDRAM K4H511638C-UCB3
IC1221 512M SDRAM K4H511638C-UCB3
P_CONT2
voltage regulator
MRST
IC3707 RESET IC
XRESET
DA T_TO_M
HS T TO M
IC3701 5V to 3V
SS T to M
HS T to M
DA M to T NSDA
HS M to T
ASCK_NSCK
USBRST
X525P SCL
USBRST SDA
X525P
IC2201 SW IC MM1503XN
IC2202 SW IC MM1501XN
buffer
CVBS/Y
C
Yp
Cb
Cr
Y
C
L
R
IC1001 UPD61272F1-107KA3A EMMA2RFE
IC3202
IC3201 audio DAC PCM 1742KE
BCKO
LRCKO
ADATAO
NSCS
ZEROR
DACCLKO
AMUTE
SPDIFO
ADATAI
BCKI
LRCKI
ADCCLKO
AD POW
IC3101 audio ADC AK5359ET
IC3102 TC7SZ126
IC3103 SELECT IC TV74VHC157FT
IC 3802 Expand IO PCA9557 PW
SCL
SDA
USBRST
525P
DV_XADC
AD POW
INT*2/U ART*2/
CN2301
SL1 SL2 MDRV LO FDRV TDRV
IC501 FTS driver BD7997FS
ST1+/- ST2+/- SPDL LOAD+/- F+, F- T+, T-
CN502 CN501 CN601
FE TE RFEQO
IC101 RF IC uPC3345GC-YEB
RF+, RF- A- D
CN101
WRITER
X201 16MHz
X1001 24MHz
X1002 27MHz
CN3801
ATAB
HDD
F
MAIN
CN3802
DVRST SCL SDA DV Y/V IN DV C IN AMCLKI(STBY) DV ADATA I DV BCKI DV LRCKI INT*2/U ART*2
CN101
VENC IC IC101 ADV7172KSTZ-K
G
DVJB
(DVR-640H-AV Only)
LINK/DVCODEC IC102 UPD72893BF1-FN3-K
16M SDRAM IC103 K4S161622H-TC60-K
PHY IC108 UPD72852AGB-8EU
DVout

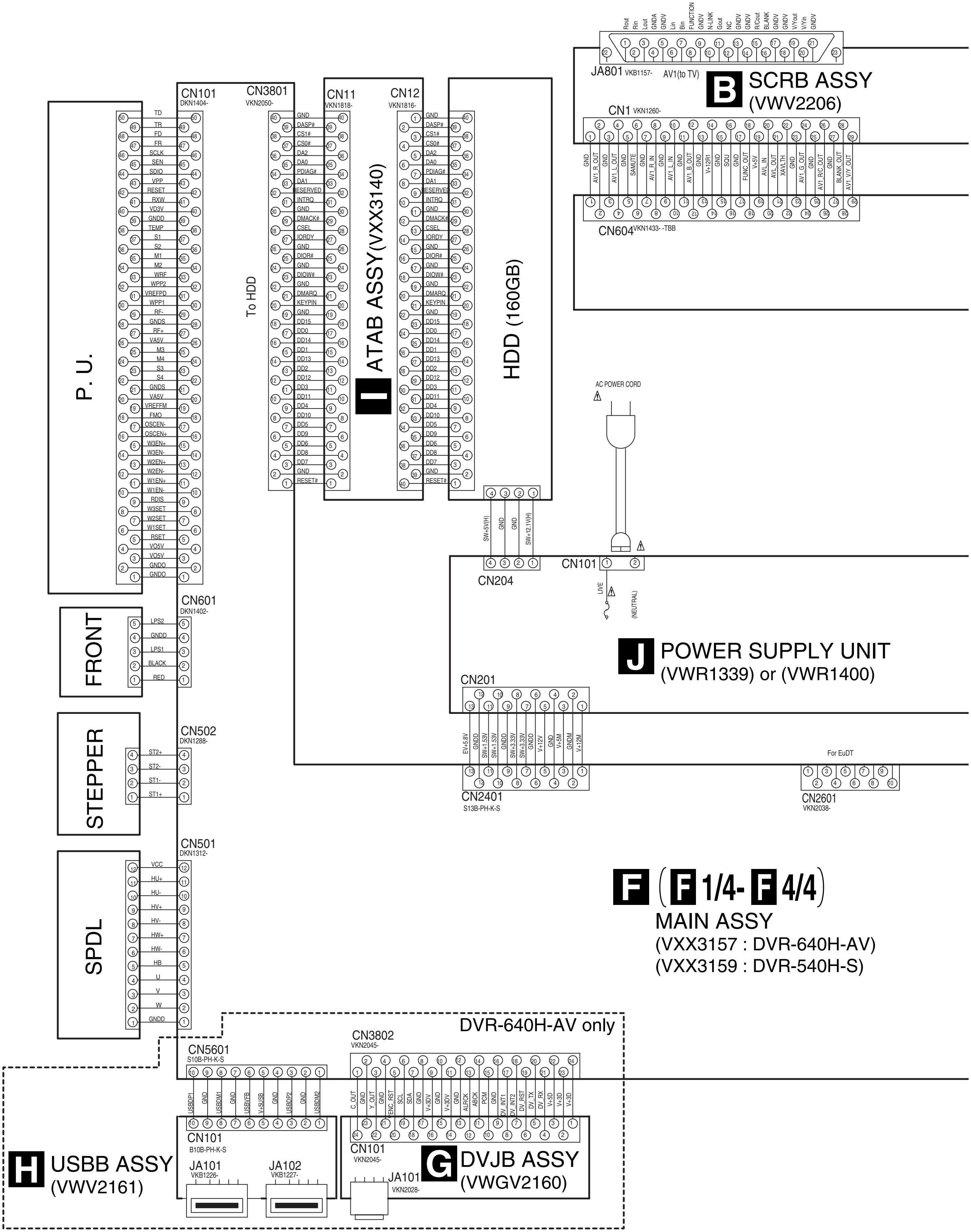
3.1.2 DETECTION AND ENCODE SYSTEM BLOCK DIAGRAM

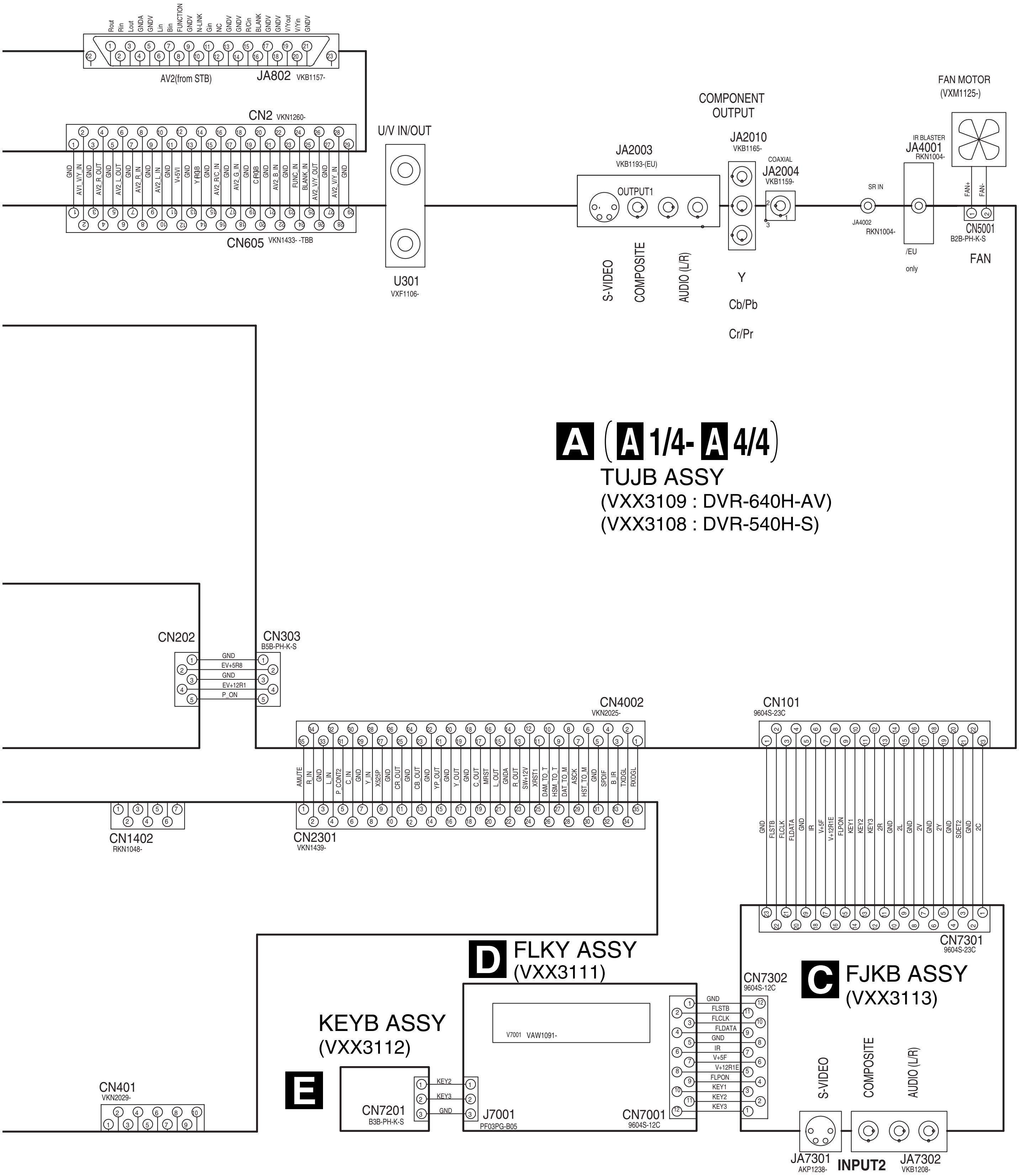

Detection and Encode System Block Diaglam
ANTENNA IN
CVBS IN
S-Video IN
CVBS/S-Video /RGB IN (Euro Scart)
CVBS OUT
S-Video OUT
YPbPr OUT (525I / 525P)
/RGB OUT (Euro Scart)
TV TUNER UNIT
Tuner Module
Input Selector & Output Driver & Euro Scart Interface IC
YC MIX
Euro Scart Inter face
CVBS /Y
C
Y
C
Y/G
Pb/B
Pr/R
DIGITAL UNIT
Y/C Sep. Block
Y
C
Detection Block
Video Decoder Block
Detected Result
Y,U,V REC.656
Micro-Controller Block
Recording Control
MPEG Enc. /Dec. Block
Data
CD/DVD Enc/Dec DSP
Video DAC Block
Y
C
Y
Pb
Pr
I/P Sel.
Y
Pb
Pr
Y
Pb
Pr
Interlace Video Encoder Block
Progressive Video Encoder Block
Encoder Block
Encoder Control
Micro-Controller
SystemLSI uPD61272
HDD Unit
DVD Unit (ASP & PickUp mecha)
PAL Model Block Diagram
DVR-440H-S/DVR-540H-S/DVR-640H-S/DVR-440H-AV/DVR-640H-AV
: Refer to [05 DVR model list] No.A6-A17,A20-A26

3.1.3 POWER BLOCK


SYPS
J
CN202
5 P_ON
4 EV+12.1V
3 GND
1 GND
2 EV+5.8V(T)
P401A
P402A
P201A
CN303
TUJB
A
IC5001
DCDC Con
V+31V
Tuner
U301
V+12R1E
IC1001
V+9V
V+12R1SW
FAN Circuit
FAN
Audio MUTE
V+5R8E
V+5V
RESET IC(Tu-con)
IC102
V+5F
V+5M
Tuner Con
IC101
V+5TU
SPDIF
V+5VI
Interface IC
IC100
V+5VO
FLKY
D
V+12V
BLUE LED
FLDC+
DC DC Con
FLDC-
FL-28V
FL TUBE
V7001
FL DRIVER
IC7001
RED LED
V+5F
Infrared Sensor SW
CN201
CN2401
5 EV+12.1V(J)
12 GND
13 EV+5.8V(M)
P204A
V+12A
V+12A
Audio LPF
MAIN
F
IC5621
USB
IC4504
V+5AVI
Video buffer
INPUT Video filter
V+5A
V+3FE
Audio DAC IC3201
Audio ADC IC3101
FLASH IC1102
P501A
7 SW+3.33V(M)
8 SW+3.33V(M)
SW+3.33V
V+3D
3R3V
V+5D
EMMA
IC1001
for I/O_buffer
RS-232C
EJTAG
TC7SU04FU IC3102
TC74VHC157FT IC3103
TC7WH34FU IC3701
USB driver IC5701
SPDIF
EMMA_Video_Decorder External Filter
Pull-up for interface with Eriter,HDD (ATA)
M3, AD/DA/WBLSLICE
V2, EFMPLL/EFMCOMP
Y7, LVDS
Y8, APLL/DLYLINE/WCDLL
IC4511
V+3V
V_ADC
V_VENC
Video_Decorder_ADC
Video_Encorder
IC4512
V+2R5
V+DDR
2R5V
DDR_SDRAM
DDR x2
IC1201,IC1221
VREF_V
Video_DAC_Vref E8
VREF_D
DDR_VREF A15
10 SW+1.53V(M)
11 SW+1.53V(M)
6 GND
9 GND
V+1R5_IN
V+1R5
RESET IC
IC3707
1R5V
Core E5,F5,J9,J13,N9,N13,U5, U8,U14,U15
PVDD
System_PLL D1
VP VDD
VDEC PLL J19,K19
V(DSP)
R2,EFMPLL
V_WP1(DSP)
AA10,WAPLL/DLYLINE/WCDLL/ WRCHPLL/203MPLL
V+3A(DSP)
J20,VDEC HSCLAMP
V+3D(DSP)
L20,VDEC FSCLAMP
1 SW+1.21V(W)
2 GND
3 GND
4 SW+5V(W)
P202A
IC2401
V+12M
6ch MOTOR DRIVER
IC501
IC2402
V+5M
V+5L
IC4507
V+3FE
V+3A
RF
IC101
REFI
Vcc6
V+5S
Vcc1,8,9
Vcc2,3,4,5,7
CN203
1 SW+12.1V(H)
2 GND
3 GND
4 SW+5V(H)
HDD
VCC
SPDL
VA5V
VO5V
VD3V
VREF21
VREFFM
P.U.
V+5D
V+3D
G
DVJB

3.2 OVERALL WIRING DIAGRAM


P. U.
CN101 DKN1404-
CN3801 VKN2050-
To HDD
CN11 VKN1818-
CN12 VKN1816-
I ATAB ASSY (VXX3140)
HDD (160GB)
JA801 VKB1157- AV1(to TV)
B SCRB ASSY (VWV2206)
CN1 VKN1260-
CN604 VKN1433- -TBB
AC POWER CORD
CN204
CN101
LIVE
(NEUTRAL)
J POWER SUPPLY UNIT (VWR1339) or (VWR1400)
CN201
CN2401 S13B-PH-K-S
For EuDT
CN2601 VKN2038-
FRONT
CN601 DKN1402-
STEPPER
CN502 DKN1288-
SPDL
CN501 DKN1312-
F (F 1/4- F 4/4) MAIN ASSY
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)
DVR-640H-AV only
CN5601 S10B-PH-K-S
CN3802 VKN2045-
CN101 B10B-PH-K-S
H USBB ASSY (VWV2161)
JA101 VKB1226-
JA102 VKB1227-
CN101 VKN2045-
JA101 VKN2028-
G DVJB ASSY (VWGV2160)

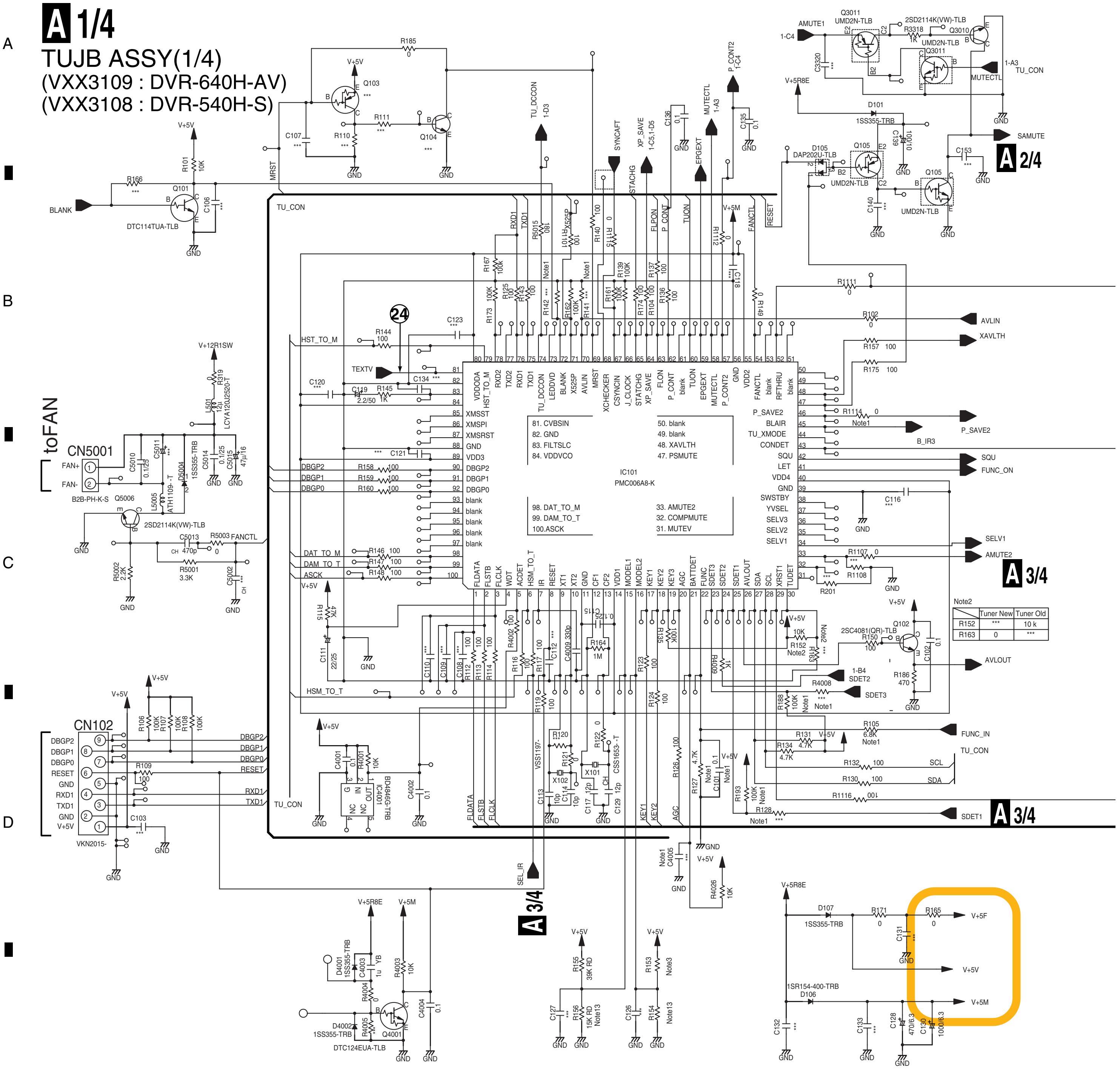

A
B
C
D
E
F
Rout Rin Lout GNDA GNDV Lin Bin FUNCTION GNDV N-LINK Gin NC GNDV GNDV R/Cin BLANK GNDV GNDV V/Yout V/Yin GNDV
AV2(from STB)
JA802 VKB1157-
CN2 VKN1260-
GND AV1_V/Y_IN GND AV2_R_OUT GND AV2_L_OUT GND AV2_R_IN GND AV2_L_IN GND V+5VI GND Y RGB GND AV2_R/C_IN GND AV2_G_IN GND C RGB GND AV2_B_IN GND FUNC_IN BLANK_IN AV2_V/Y_OUT GND AV2_V/Y_IN GND
CN605 VKN1433- -TBB
U/V IN/OUT
U301
VXF1106-
JA2003
VKB1193-(EU)
OUTPUT1
S-VIDEO
COMPOSITE
AUDIO (L/R)
COMPONENT
OUTPUT
JA2010
VKB1165-
Y
Cb/Pb
Cr/Pr
COAXIAL
JA2004
VKB1159-
SR IN
JA4002
RKN1004-
IR BLASTER
JA4001
RKN1004-
/EU
only
FAN MOTOR
(VXM1125-)
FAN+
FAN-
CN5001
B2B-PH-K-S
FAN
A (A 1/4- A 4/4)
TUJB ASSY
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)
CN202
CN303
B5B-PH-K-S
GND
EV+5R8
GND
EV+12R1
P_ON
CN4002
VKN2025-
CN101
9604S-23C
AMUTE R_IN GND L_IN P_CONT2 C_IN GND Y_IN XS25P GND CR_OUT GND CB_OUT GND YP_OUT GND Y_OUT GND C_OUT MRST L_OUT GNDA R_OUT SW+12V XRST1 DAM_TO_T HSM_TO_T DAT_TO_M ASCK HST_TO_M GND SPDIF B_IR TXDGL RXDGL
GND FLSTB FLCLK FLDATA GND IR V+5F V+12R1E FLPON KEY1 KEY2 KEY3 2R GND 2L GND 2V GND 2Y GND SDET2 GND 2C
CN1402
RKN1048-
CN2301
VKN1439-
CN7301
9604S-23C
D FLKY ASSY
(VXX3111)
V7001 VAW1091-
CN7302
9604S-12C
C FJKB ASSY
(VXX3113)
KEYB ASSY
(VXX3112)
E
CN7201
B3B-PH-K-S
KEY2
KEY3
GND
J7001
PF03PG-B05
CN7001
9604S-12C
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
KEY3
S-VIDEO
COMPOSITE
AUDIO (L/R)
JA7301
AKP1238-
INPUT2
JA7302
VKB1208-
CN401
VKN2029-

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ⬭ : The power supply is shown with the marked box.

3.3 TUJB ASSY (1/4)

A 1/4

TUJB ASSY(1/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)

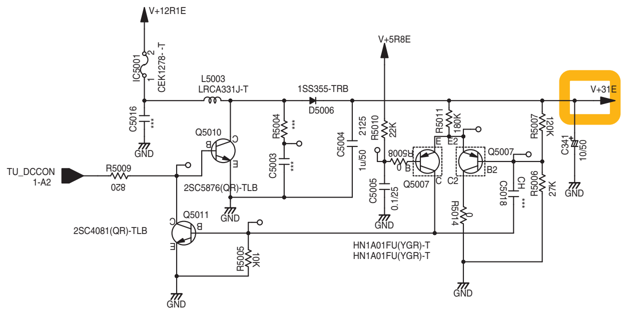

A
B
C
D
E
toFAN
CN5001
FAN+
FAN-
B2B-PH-K-S
Q5006
2SD2114K(VW)-TLB
C5010 0.1/25
C5011
D5004 1SS355-TRB
C5014
C5015 0.1/25 47μ/16
L5005 ATH1109-T
L501 LCYA120J2520-T
R5019
V+12R1SW
C5013 470p
R5003 FANCTL
R5002 2.2K
R5001 3.3K
C5002
BLANK
R166
Q101 DTC114TUA-TLB
C106
R101 10K
V+5V
C107
MRST
Q103
R185 0
R110
R111
Q104
TU_CON
TU_DCCON 1-D3
SYNCAFT
XP_SAVE 1-C5,1-D5
STACHG
EPGEXT
MUTECTL 1-A3
P_CONT2 1-C4
C136 0.1
C135 0.1
AMUTE1
1-C4
Q3011 UMD2N-TLB
2SD2114K(VW)-TLB
R3318 1K
Q3010
UMD2N-TLB
C3320
V+5R8E
1-A3 TU_CON
MUTECTL
D101 1SS355-TRB
C139 100/10
D105 DAP202U-TLB
Q105 UMD2N-TLB
C153
SAMUTE
A 2/4
C140
R1111 0
R102 0
AVLIN
XAVLTH
R157 100
R175 100
R1114 0
Note1
P_SAVE2
B_IR3
SQU
FUNC_ON
SELV1
AMUTE2
R1107 0
R1108
R201
A 3/4
24
HST_TO_M
R144 100
C123
TEXTV
C134
C120
C119 2.2/50
R145 1K
C121
DBGP2
DBGP1
DBGP0
R158 100
R159 100
R160 100
DAT_TO_M
DAM_TO_T
ASCK
R146 100
R147 100
R148 100
IC101
PMC006A8-K
81. CVBSIN
82. GND
83. FILTSLC
84. VDDVCO
50. blank
49. blank
48. XAVLTH
47. PSMUTE
98. DAT_TO_M
99. DAM_TO_T
100.ASCK
33. AMUTE2
32. COMPMUTE
31. MUTEV
VDDODA
HST_TO_M
RXD2
TXD2
RXD1
TXD1
TU_DCCON
LEDDVD
BLANK
X525P
AVLIN
MRST
XCHECKER
CSYNCIN
J_CLOCK
STATCHG
XP_SAVE
FLON
P_CONT
TUON
EPGEXT
MUTECTL
P_CONT2
GND
VDD2
FANCTL
RFTHRU
XMSST
XMSPI
XMSRST
VDD3
P_SAVE2
BLAIR
TU_XMODE
CONDET
LET
VDD4
SWSTBY
YVSEL
SELV3
SELV2
FLDATA
FLSTB
FLCLK
WDT
ACDET
HSM_TO_T
IR
RESET
XT1
XT2
CF1
CF2
VDD1
MODEL1
MODEL2
KEY1
KEY2
KEY3
AGC
BATTDET
FUNC
SDET3
SDET2
SDET1
AVLOUT
SDA
SCL
XRST1
TUDET
Q102 2SC4081(QR)-TLB
R150 100
R152 Note2
R163 Note2
R186 470
C102 0.1
AVLOUT
1-B4 SDET2
R4008
SDET3
R188 100K
Note1
R105 6.8K
FUNC_IN
R131 4.7K
R134 4.7K
R132 100
R130 100
R1116 100
R128
SCL
SDA
SDET1
A 3/4
CN102
RESET
GND
RXD1
TXD1
VKN2015-
R106 100K
R107 100K
R108 100K
R109 100
C103
HSM_TO_T
IC4001 BD4846G-TRB
R4001 10K
C4002 0.1
X101 CSS1653-T
X102
R164 1M
C117 12p
C129 12p
R122 0
R120
R121
C4009 330p
C4005
R4026 10K
SEL_IR
A 3/4
V+5R8E
V+5M
D4001 1SS355-TRB
C4003 1u YB
R4003 10K
R4004 0
R4005
C4004 0.1
D4002 1SS355-TRB
Q4001 DTC124EUA-TLB
R155 39K RD
R156 15K RD Note13
R153 Note3
R154 Note13
C127
C126
D107 1SS355-TRB
R171 0
R165 0
V+5F
C131
V+5V
1SR154-400-TRB D106
V+5M
C132
C133
C128 470/6.3
C130 100/6.3

Note2

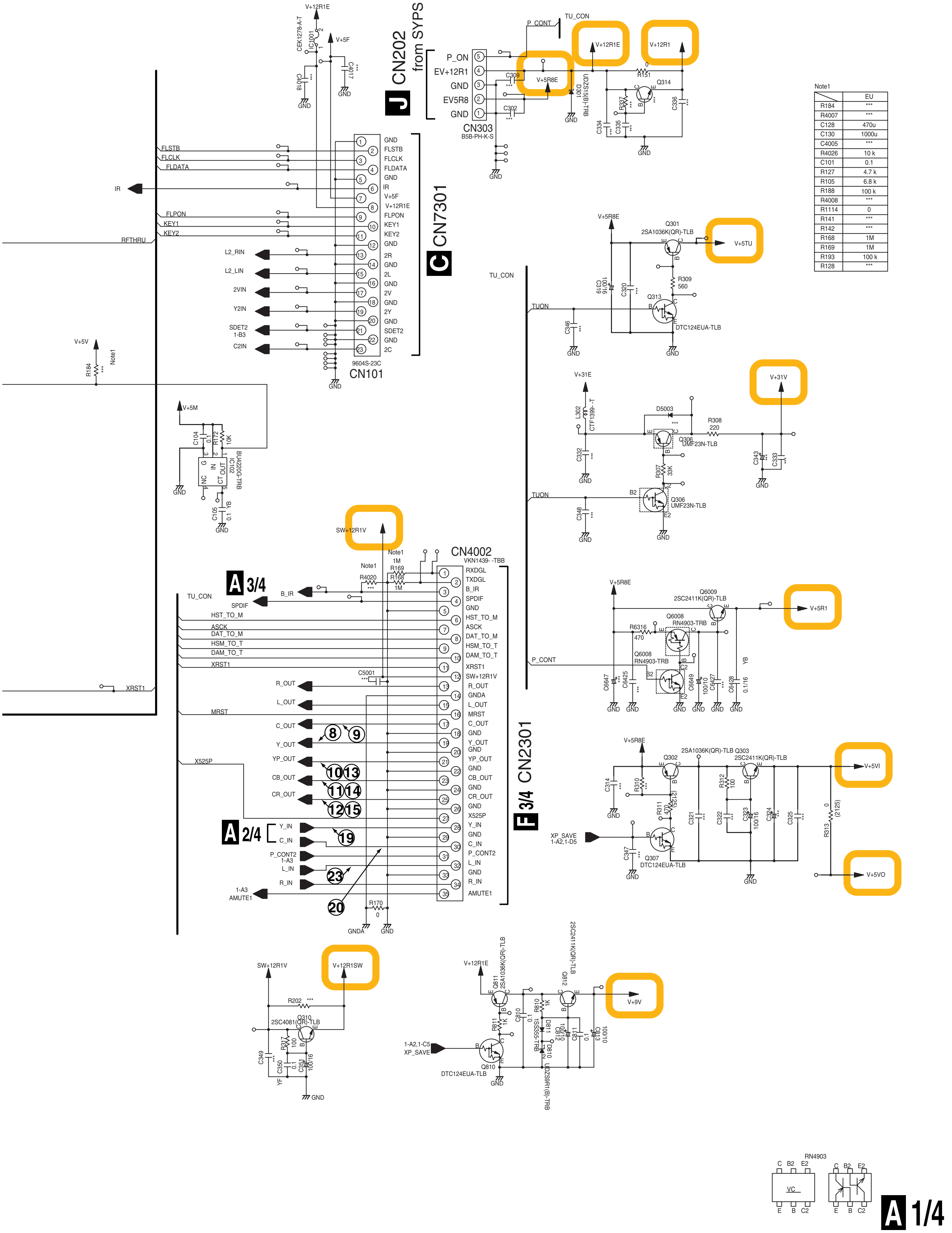
	Tuner New	Tuner Old
R152	***	10 k
R163	0	***

NOTE3

type	EU	
	640H/WY	540H/WY
		440H/WY
ASSY	VWM2371	VWM2370
	VWV2169	←
U301	VXF1106-	←
IC901	MSP3417G	←
R910	***	←
R153	***	39K
R154	15K	6.8K
R155	39K	39K
R156	15K	15K


F
V+12R1E
IC5001 CEK1278-T
L5003 LRCA331J-T
1SS355-TRB D5006
V+5R8E
V+31E
C5016
Q5010 2SC5876(QR)-TLB
R5004
C5003
C5004 1u/50
2125
R5010 22K
8005
R5011 180K
R5007 120K
C341 10/50
Q5007
HN1A01FU(YGR)-T
C5005 0.1/25
C5018
R5006 27K
R5014
TU_DCCON 1-A2
R5009 820
Q5011 2SC4081(QR)-TLB
R5005 10K
GND

A 1/4


J CN202 from SYPS
P_ON
EV+12R1
GND
EV5R8
GND
CN303
B5B-PH-K-S
P_CONT
TU_CON
V+12R1E
V+12R1
V+5R8E
C309
C302
D301 UDZS15(B)-TRB
R151
0
Q314
R337
C334
C335
C336
GND
V+12R1E
V+5F
CEK1278-A-T
IC1001
C4018
C4017
C CN7301
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
GND
2R
GND
2L
GND
2V
GND
2Y
GND
SDET2
GND
2C
9604S-23C
CN101
FLSTB
FLCLK
FLDATA
IR
FLPON
KEY1
KEY2
RFTHRU
L2_RIN
L2_LIN
2VIN
Y2IN
SDET2
1-B3
C2IN
V+5V
R184
Note1
V+5M
C104
R172
10K
IC102
BU4220G-TRB
NC
G
IN
CT
OUT
C105
YB
0.1
GND
V+5R8E
Q301
2SA1036K(QR)-TLB
V+5TU
C319
100/16
C320
R309
560
Q313
DTC124EUA-TLB
TU_CON
TUON
C346
V+31E
L302
CTF1399-T
D5003
R308
220
V+31V
Q306
UMF23N-TLB
C332
R307
33K
C343
C333
TUON
C348
B2
E2
SW+12R1V
Note1
R4020
R169
1M
R168
1M
CN4002
VKN1439- -TBB
RXDGL
TXDGL
B_IR
SPDIF
GND
HST_TO_M
ASCK
DAT_TO_M
HSM_TO_T
DAM_TO_T
XRST1
SW+12R1V
R_OUT
GNDA
L_OUT
MRST
C_OUT
GND
Y_OUT
GND
YP_OUT
GND
CB_OUT
GND
CR_OUT
GND
X525P
Y_IN
GND
C_IN
P_CONT2
L_IN
GND
R_IN
AMUTE1
F 3/4 CN2301
A 3/4
TU_CON
B_IR
SPDIF
HST_TO_M
ASCK
DAT_TO_M
HSM_TO_T
DAM_TO_T
XRST1
C5001
XRST1
R_OUT
L_OUT
MRST
C_OUT
Y_OUT
X525P
YP_OUT
CB_OUT
CR_OUT
A 2/4
Y_IN
C_IN
P_CONT2
1-A3
L_IN
R_IN
1-A3
AMUTE1
8
9
10
13
11
14
12
15
19
23
20
R170
0
GNDA
GND
V+5R8E
Q6009
2SC2411K(QR)-TLB
V+5R1
Q6008
RN4903-TRB
R6316
470
P_CONT
C6647
C6425
C6649
100/10
C6427
C6428
0.1/16
YB
V+5R8E
Q302
2SA1036K(QR)-TLB
Q303
2SC2411K(QR)-TLB
V+5VI
C314
R310
R311
R312
100
C321
C322
C323
100/16
C324
C325
R313
0
(2125)
XP_SAVE
1-A2,1-D5
Q307
DTC124EUA-TLB
C347
V+5VO
SW+12R1V
V+12R1SW
R202
Q310
2SC4081(QR)-TLB
R317
100
C349
C350
C351
100/16
YF
GND
V+12R1E
Q811
2SA1036K(QR)-TLB
Q812
2SC2411K(QR)-TLB
R810
1K
R811
1K
C810
0.1
D811
1SS355-TRB
C812
100/10
C811
0.1
C813
100/10
D810
UDZS9R1(B)-TRB
V+9V
1-A2,1-C5
XP_SAVE
Q810
DTC124EUA-TLB
RN4903
C B2 E2
VC
E B C2
A 1/4

Note1

	EU
R184	***
R4007	***
C128	470u
C130	1000u
C4005	***
R4026	10 k
C101	0.1
R127	4.7 k
R105	6.8 k
R188	100 k
R4008	***
R1114	0
R141	***
R142	***
R168	1M
R169	1M
R193	100 k
R128	***

3.4 TUJB ASSY (2/4)

A 2/4 TUJB ASSY(2/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)

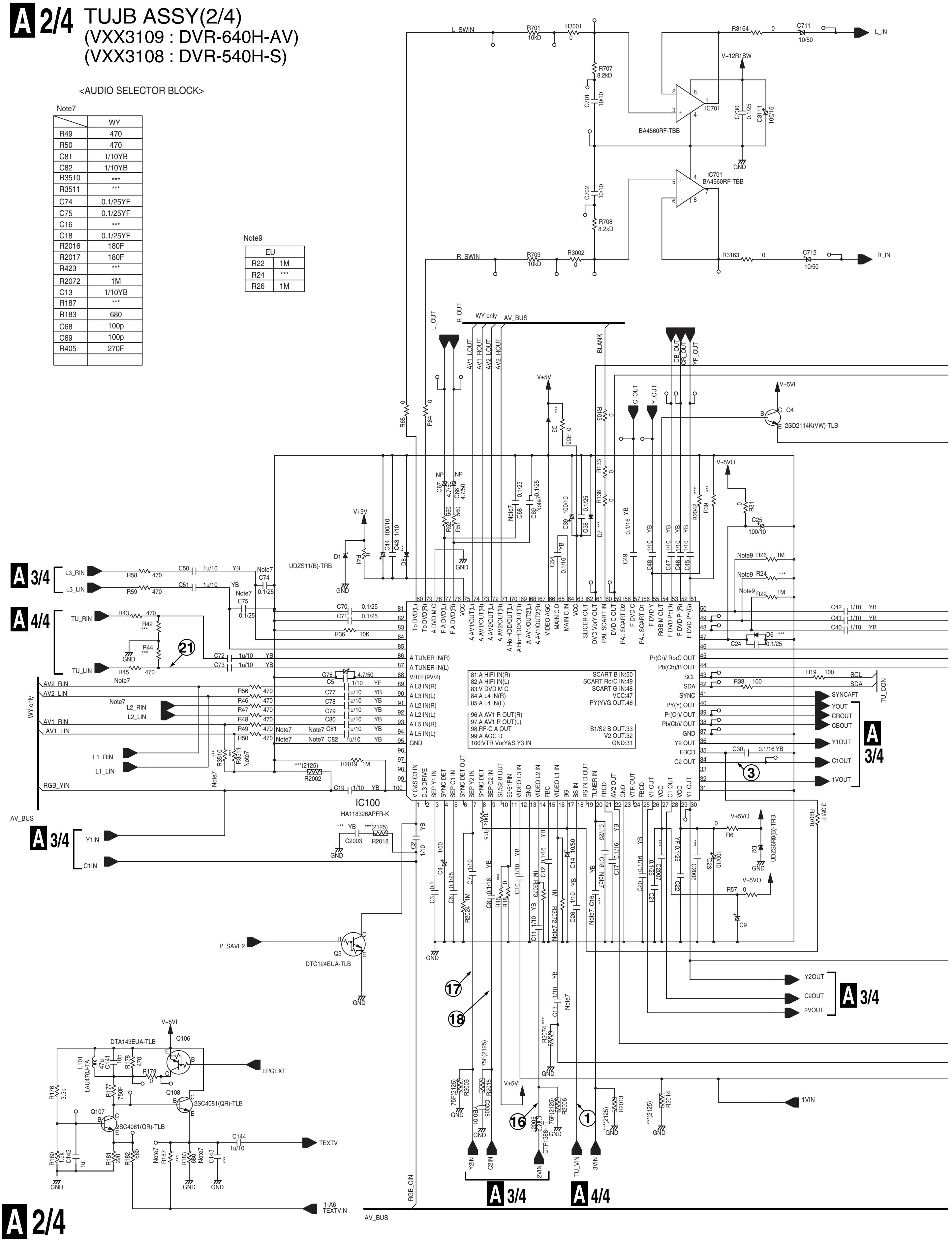
<AUDIO SELECTOR BLOCK>

Note7

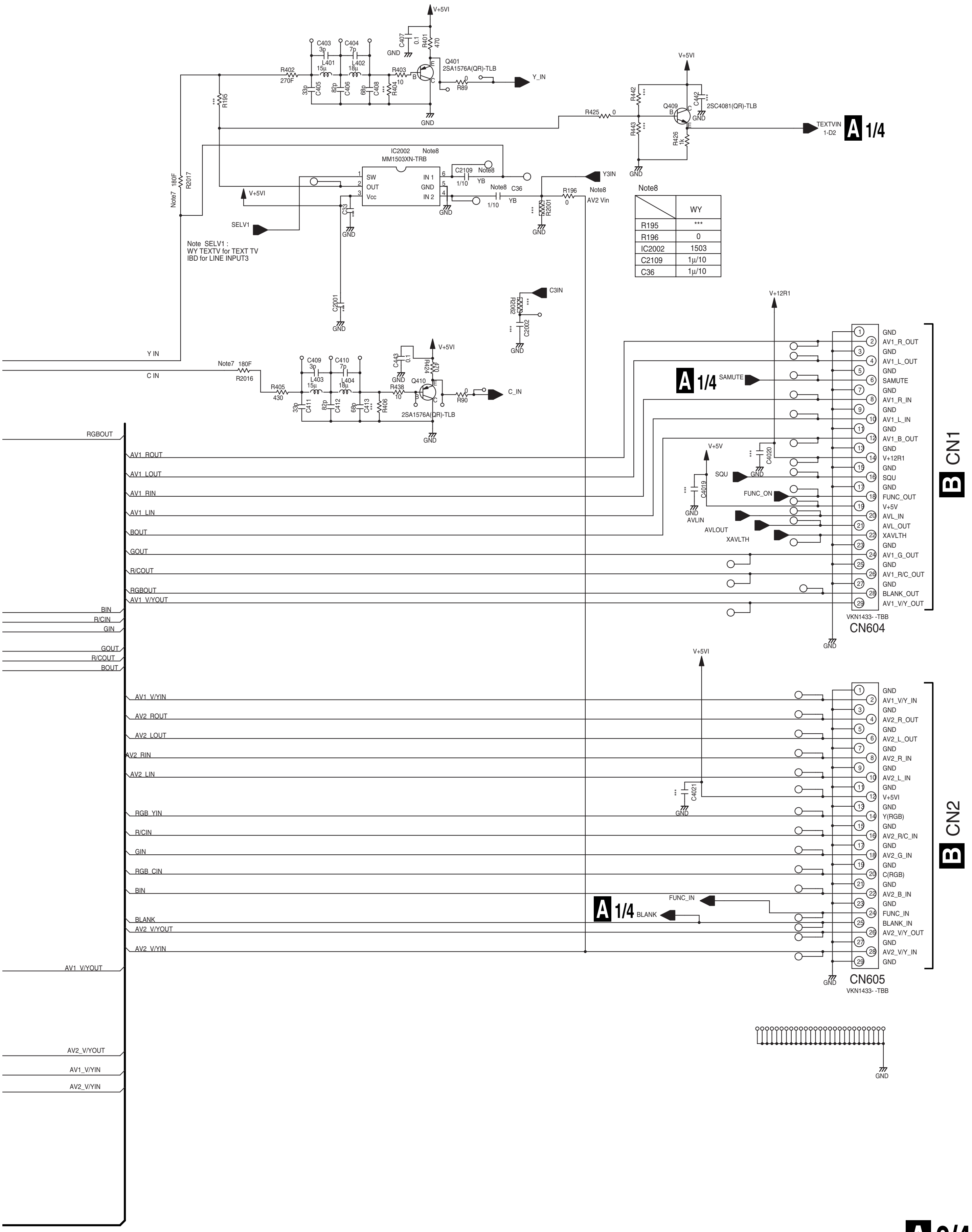
	WY
R49	470
R50	470
C81	1/10YB
C82	1/10YB
R3510	***
R3511	***
C74	0.1/25YF
C75	0.1/25YF
C16	***
C18	0.1/25YF
R2016	180F
R2017	180F
R423	***
R2072	1M
C13	1/10YB
R187	***
R183	680
C68	100p
C69	100p
R405	270F

Note9

	EU
R22	1M
R24	***
R26	1M


A
B
C
D
E
F
L_SWIN
R701 10kΩ
R3001 0
R707 8.2kΩ
C701 10/10
IC701
BA4560RF-TBB
V+12R1SW
C730 0.1/25
C3111 100/16
GND
C702 10/10
R708 8.2kΩ
R3164 0
C711 10/50
L_IN
R_SWIN
R703 10kΩ
R3002 0
R3163 0
C712 10/50
R_IN
L_OUT
R_OUT
WY only
AV_BUS
AV1_LOUT
AV1_ROUT
AV2_LOUT
AV2_ROUT
BLANK
CB_OUT
CR_OUT
YP_OUT
C_OUT
Y_OUT
V+5VI
Q4
2SD2114K(VW)-TLB
V+5VO
V+9V
UDZS11(B)-TRB
D1
A 3/4
L3_RIN
L3_LIN
R58 470
R59 470
C50 1u/10 YB
C51 1u/10 YB
Note7 C74 0.1/25
Note7 C75 0.1/25
A 4/4
TU_RIN
TU_LIN
R43 470
R42 ***
R44 ***
R45 470
Note7
21
C72 1u/10 YB
C73 1u/10 YB
C70 0.1/25
C71 0.1/25
R36 10K
C76 4.7/50
C5 1/10 YF
AV2_RIN
AV2_LIN
AV1_RIN
AV1_LIN
L2_RIN
L2_LIN
L1_RIN
L1_LIN
R56 470
R46 470
R47 470
R48 470
R49 470
R50 470
C77 1u/10 YB
C78 1u/10 YB
C79 1u/10 YB
C80 1u/10 YB
C81 1u/10 YB
C82 1u/10 YB
R3510 ***
R3511 ***
R2019 1M
R2002 ***(2125)
C19 1/10 YB
RGB_YIN
IC100
HA118326APFR-K
81:A HIFI IN(R)
82:A HIFI IN(L)
83:V DVD M C
84:A L4 IN(R)
85:A L4 IN(L)
96:A AV1 R OUT(R)
97:A AV1 R OUT(L)
98:RF-C A OUT
99:A AGC D
100:VTR VorY&S Y3 IN
SCART B IN:50
SCART RorC IN:49
SCART G IN:48
VCC:47
PY(Y)/G OUT:46
S1/S2 B OUT:33
V2 OUT:32
GND:31
To DVD(L)
To DVD(R)
A DVD M C
F A DVD(L)
F A DVD(R)
VCC
A AV1/OUT(L)
A AV1/OUT(R)
A AV2/OUT(L)
A AV2/OUT(R)
A HorHDD/OUT(L)
A HorHDD/OUT(R)
A AV1/OUT2(L)
A AV1/OUT2(R)
VIDEO AGC
MAIN C D
MAIN C IN
VCC
SLICER OUT
DVD VorY OUT
PAL SCART IN
DVD C OUT
PAL SCART D2
PAL SCART D1
F DVD C
F DVD Y
RGB M OUT
F DVD Pb(B)
F DVD Pr(R)
F DVD PY(G)
A TUNER IN(R)
A TUNER IN(L)
VREF(9V/2)
A L3 IN(R)
A L3 IN(L)
A L2 IN(R)
A L2 IN(L)
A L5 IN(R)
A L5 IN(L)
GND
Pr(Cr)/ RorC OUT
Pb(Cb)/B OUT
SCL
SDA
SYNC
PY(Y) OUT
Pr(Cr)/ OUT
Pb(Cb)/ OUT
GND
Y2 OUT
FBCD
C2 OUT
V C&S C3 IN
DL3 DRIVE
SEP Y1 IN
SYNC DET
SEP C1 IN
SYNC DET OUT
SEP Y2 IN
SYNC DET
SEP C2 IN
S1/S2 B OUT
59/61PIN
VIDEO L3 IN
GND
VIDEO L2 IN
FBC
VIDEO L1 IN
BG
BS IN
RS IN D OUT
TUNER IN
FBCD
AV2 OUT
GND
VTR OUT
FBCD
V1 OUT
VCC
C1 OUT
VCC
Y1 OUT
C42 1/10 YB
C41 1/10 YB
C40 1/10 YB
R26 1M Note9
R24 *** Note9
R22 1M Note9
D6 ***
C24
0.1/25
R19 100
SCL
SDA
R38 100
TU_CON
SYNCAFT
YOUT
CROUT
CBOUT
Y1OUT
C1OUT
1VOUT
C30 0.1/16 YB
3
A 3/4
R2070 3.3M F
V+5VO
R6 0
D2
UDZS6R8(B)-TRB
R57 0
C9
A 3/4
Y1IN
C1IN
C2003
R2018 ***(2125)
C2 1/10
P_SAVE2
Q2
DTC124EUA-TLB
GND
Y2OUT
C2OUT
2VOUT
17
18
R2074 ***
C13 1/10 YB Note7
V+5VI
Y2IN
C2IN
2VIN
TU_VIN
3VIN
R2003 75F(2125)
R2015 75F(2125)
C2005 1/10 YB
L2005 CTF1388-T
R2006 75F(2125)
R2013 ***(2125)
R2014 ***(2125)
16
1
1VIN
A 3/4
A 4/4
V+5VI
Q106
DTA143EUA-TLB
L101 LAU470J-TA
C141 47u
R178 470
R179 0
EPGEXT
R176 3.3k
R177 750F
Q108
2SC4081(QR)-TLB
Q107
2SC4081(QR)-TLB
C144 1u/10
TEXTV
R180 1.5K
C142 1u
R181 220
R182 680
Note7 R187 ***
R183 680 Note7
C143 ***
GND
1-A6 TEXTVIN
RGB_CIN
AV_BUS

A 2/4


V+5VI
C403 3p
C404 7p
C407 0.1
R401 470
GND
Q401 2SA1576A(QR)-TLB
R402 270F
L401 15μ
L402 18μ
R403 10
R404
R89 0
Y_IN
33p C405
82p C406
68p C408
R195
V+5VI
R442
C442
Q409
2SC4081(QR)-TLB
R425 0
R443
R426 1k
TEXTVIN 1-D2
A 1/4
IC2002 Note8
MM1503XN-TRB
SW
OUT
Vcc
IN 1
GND
IN 2
C2109 Note8 1/10 YB
Note8 C36 1/10 YB
Y3IN
R196 0
Note8 AV2 Vin
R2001
C33
SELV1
V+5VI
Note7 180F R2017
Note SELV1 :
WY TEXTV for TEXT TV
IBD for LINE INPUT3
C2001
C3IN
R2002
C2002
V+12R1
Y IN
C IN
Note7 180F R2016
R405 430
C409 3p
C410 7p
L403 15μ
L404 18μ
C443 0.1
R424 470
V+5VI
R438 10
Q410
C_IN
R90 0
33p C411
82p C412
68p C413
R406
2SA1576A(QR)-TLB
SAMUTE
V+5V
C4020
SQU
C4019
FUNC_ON
AVLIN
AVLOUT
XAVLTH
RGBOUT
AV1_ROUT
AV1_LOUT
AV1_RIN
AV1_LIN
BOUT
GOUT
R/COUT
RGBOUT
AV1_V/YOUT
BIN
R/CIN
GIN
GOUT
R/COUT
BOUT
GND
AV1_R_OUT
GND
AV1_L_OUT
GND
SAMUTE
GND
AV1_R_IN
GND
AV1_L_IN
GND
AV1_B_OUT
GND
V+12R1
GND
SQU
GND
FUNC_OUT
V+5V
AVL_IN
AVL_OUT
XAVLTH
GND
AV1_G_OUT
GND
AV1_R/C_OUT
GND
BLANK_OUT
AV1_V/Y_OUT
VKN1433- -TBB
CN604
B CN1
V+5VI
AV1_V/YIN
AV2_ROUT
AV2_LOUT
AV2_RIN
AV2_LIN
C4021
RGB_YIN
R/CIN
GIN
RGB_CIN
BIN
FUNC_IN
BLANK
AV2_V/YOUT
AV2_V/YIN
GND
AV1_V/Y_IN
GND
AV2_R_OUT
GND
AV2_L_OUT
GND
AV2_R_IN
GND
AV2_L_IN
GND
V+5VI
GND
Y(RGB)
GND
AV2_R/C_IN
GND
AV2_G_IN
GND
C(RGB)
GND
AV2_B_IN
GND
FUNC_IN
BLANK_IN
AV2_V/Y_OUT
GND
AV2_V/Y_IN
GND
CN605
VKN1433- -TBB
B CN2
AV1_V/YOUT
AV2_V/YOUT
AV1_V/YIN
AV2_V/YIN
GND
A B C D E F

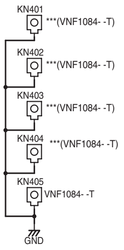
Note8

	WY
R195	***
R196	0
IC2002	1503
C2109	1μ/10
C36	1μ/10

A 2/4

3.5 TUJB ASSY(3/4)

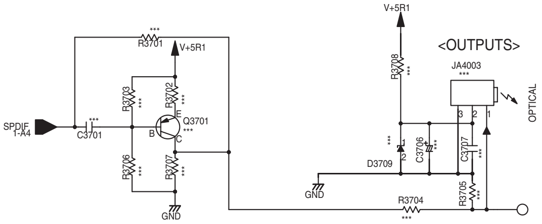
A


KN401
***(VNF1084- -T)
KN402
***(VNF1084- -T)
KN403
***(VNF1084- -T)
KN404
***(VNF1084- -T)
KN405
VNF1084- -T
GND

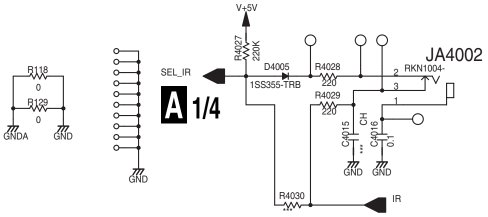
B

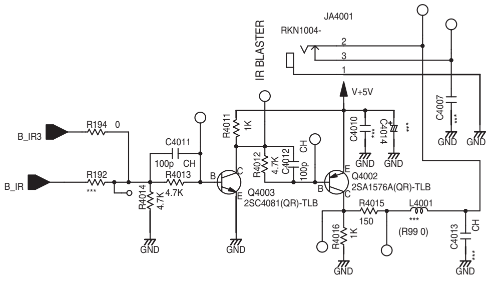
C

D


***
R3701
V+5R1
R3703
***
R3702
***
SPDIF
1-A4
***
C3701
E
Q3701
***
B
C
R3706
***
R3707
***
GND
V+5R1
<OUTPUTS>
R3708
***
JA4003
***
OPTICAL
3
2
1
***
1
2
D3709
C3706
***
C3707
***
GND
R3705
***
R3704
***

E


R118
0
R129
0
GNDA
GND
GND
SEL_IR
A 1/4
V+5V
R4027
220K
D4005
1SS355-TRB
R4028
220
R4029
220
JA4002
RKN1004-
2
3
1
C4015
***
CH
C4016
0.1
GND
GND
R4030
***
IR

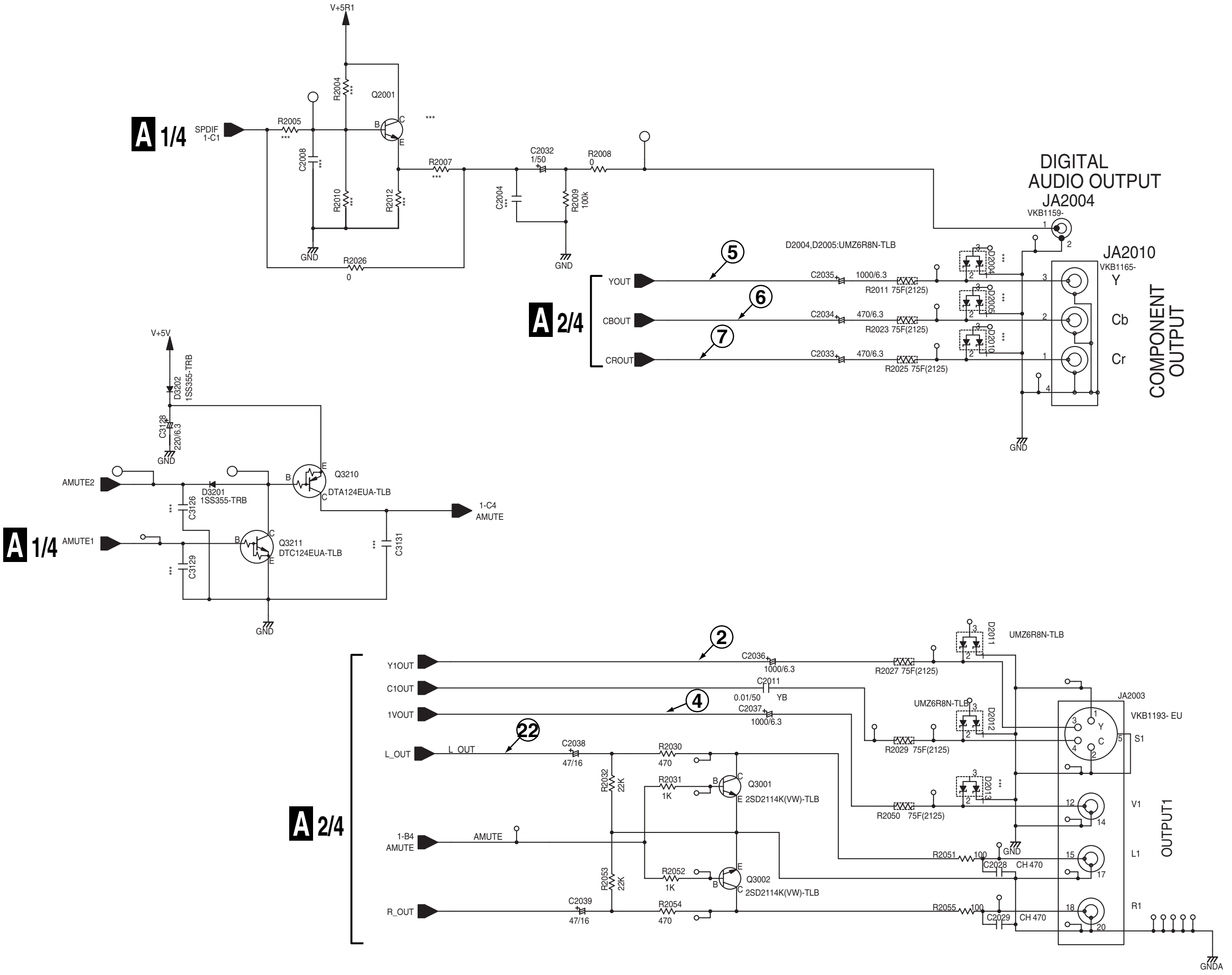

JA4001
RKN1004-
IR BLASTER
2
3
1
V+5V
B_IR3
R194 0
B_IR
R192
***
C4011
100p CH
R4013
4.7K
R4014
4.7K
GND
R4011
1K
B
C
E
Q4003
2SC4081(QR)-TLB
GND
R4012
4.7K
C4012
100p
CH
C4010
***
C4014
***
GND
GND
E
Q4002
2SA1576A(QR)-TLB
B
C
R4015
150
L4001
***
(R99 0)
R4016
1K
GND
C4007
***
GND
GND
C4013
CH
***
GND

F

A 3/4

A 3/4 TUJB ASSY(3/4)

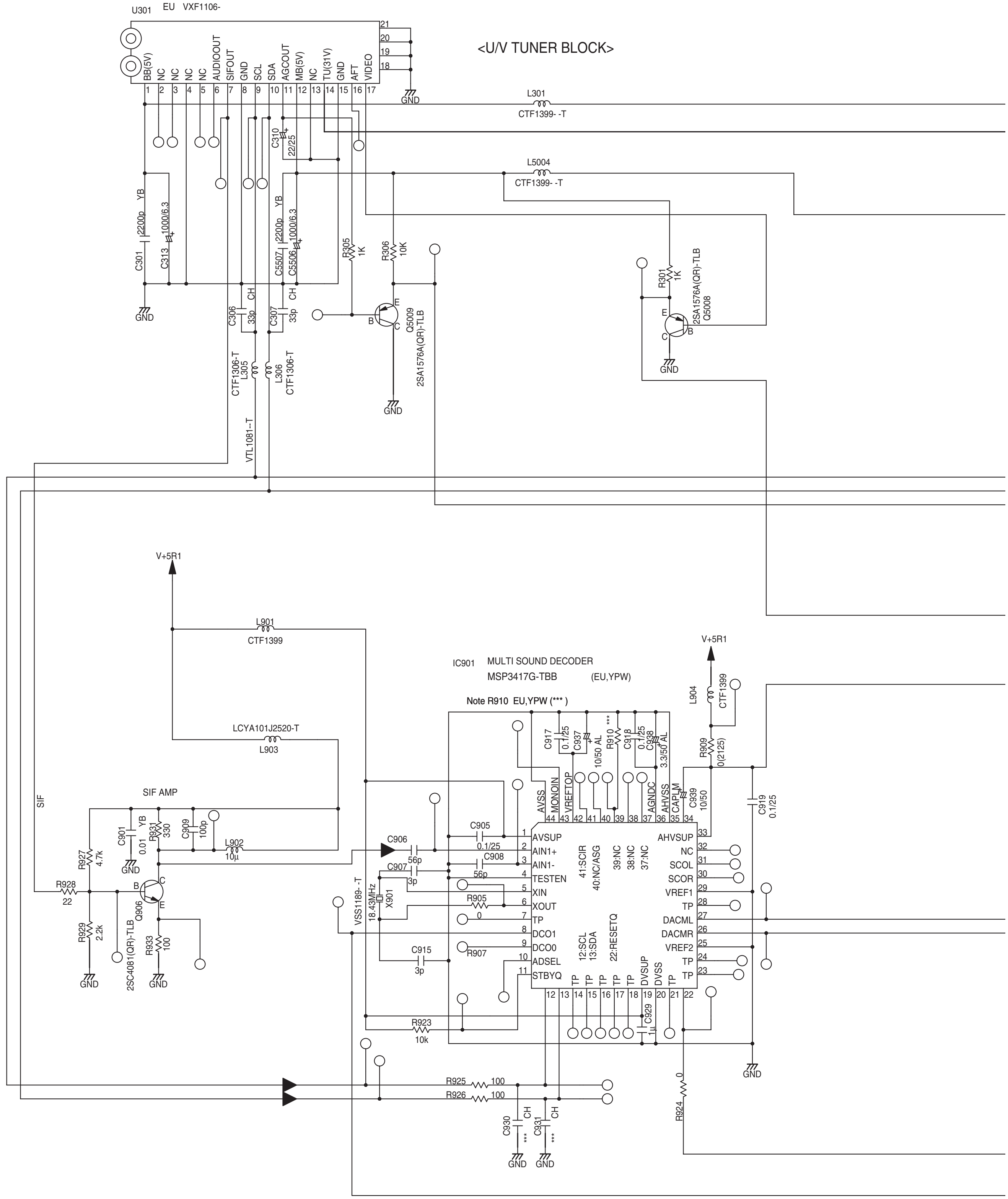
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)



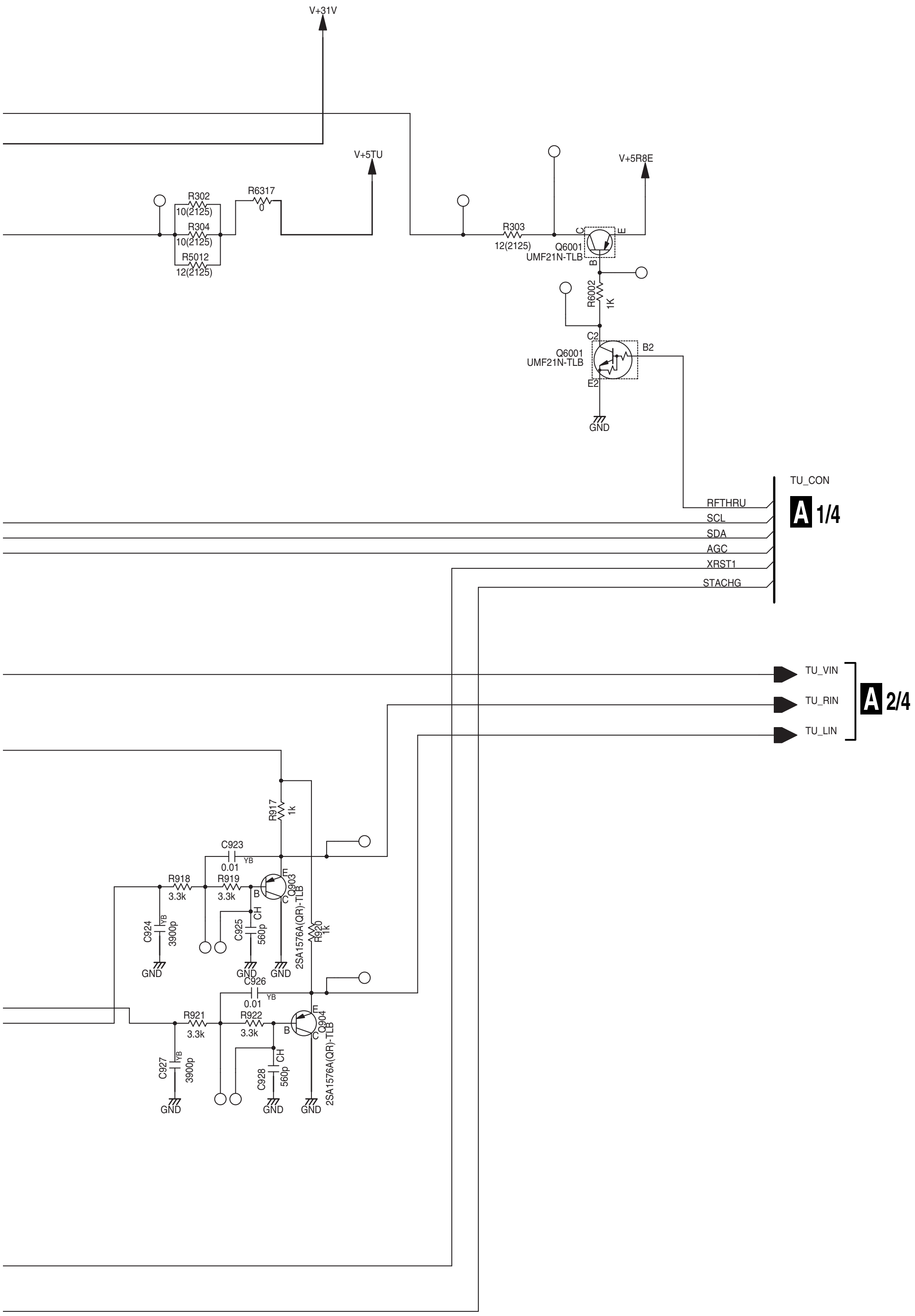
V+5R1
A 1/4
SPDIF 1-C1
R2005
R2004
Q2001
C2008
R2010
R2012
R2007
C2032 1/50
R2008 0
C2004
R2009 100k
GND
R2026 0
DIGITAL AUDIO OUTPUT
JA2004
VKB1159-
D2004,D2005:UMZ6R8N-TLB
JA2010
VKB1165-
A 2/4
YOUT
CBOUT
CROUT
C2035
1000/6.3
R2011 75F(2125)
C2034
470/6.3
R2023 75F(2125)
C2033
470/6.3
R2025 75F(2125)
D2004
D2005
D2010
Y
Cb
Cr
COMPONENT OUTPUT
V+5V
D3202 1SS355-TRB
C3128 220/6.3
AMUTE2
D3201 1SS355-TRB
Q3210 DTA124EUA-TLB
1-C4 AMUTE
A 1/4
AMUTE1
C3126
C3129
Q3211 DTC124EUA-TLB
C3131
Y1OUT
C1OUT
1VOUT
L_OUT
C2036 1000/6.3
C2011 0.01/50 YB
C2037 1000/6.3
C2038 47/16
R2027 75F(2125)
UMZ6R8N-TLB
D2011
D2012
D2013
R2029 75F(2125)
R2050 75F(2125)
JA2003
VKB1193- EU
S1
V1
L1
R1
OUTPUT1
R2030 470
R2032 22K
R2031 1K
Q3001 2SD2114K(VW)-TLB
1-B4 AMUTE
R2053 22K
R2052 1K
Q3002 2SD2114K(VW)-TLB
R_OUT
C2039 47/16
R2054 470
R2051 100
C2028 CH 470
R2055 100
C2029 CH 470
GNDA
2
4
5
6
7
22

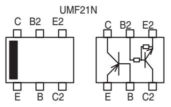
3.6 TUJB ASSY(4/4)

A 4/4 TUJB ASSY(4/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)


U301 EU VXF1106-
BB(5V)
NC
NC
NC
NC
AUDIOOUT
SIFOUT
GND
SCL
SDA
AGCOUT
MB(5V)
NC
TU(31V)
GND
AFT
VIDEO
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
21 20 19 18
GND
<U/V TUNER BLOCK>
L301 CTF1399- -T
L5004 CTF1399- -T
C310 22/25
C301 2200p YB
C313 1000/6.3
C5507 2200p YB
C5506 1000/6.3
R305 1K
R306 10K
C306 CH 33p
C307 CH 33p
CTF1306-T L305
L306 CTF1306-T
VTL1081- -T
Q5009 2SA1576A(QR)-TLB
R301 1K
2SA1576A(QR)-TLB Q5008
E B C
GND
V+5R1
L901 CTF1399
LCYA101J2520-T L903
SIF
SIF AMP
C901 0.01 YB
R931 330
C909 100p
L902 10μ
R927 4.7k
R928 22
R929 2.2k
Q906 2SC4081(QR)-TLB
R933 100
GND
IC901 MULTI SOUND DECODER
MSP3417G-TBB (EU,YPW)
Note R910 EU,YPW (***)
C917 0.1/25
C937 10/50 AL
R910 ***
C918 0.1/25
C938 3.3/50 AL
C939 10/50
R909 0(2125)
L904 CTF1399
V+5R1
C919 0.1/25
C906 56p
C905 0.1/25
C908 56p
C907 3p
VSS1189- -T
18.43MHz X901
R905 0
R907
C915 3p
1 AVSUP
2 AIN1+
3 AIN1-
4 TESTEN
5 XIN
6 XOUT
7 TP
8 DCO1
9 DCO0
10 ADSEL
11 STBYQ
44 AVSS
43 MONOIN
42 VREFTOP
41 40 39 38 37
36 AGNDC
35 AHVSS
34 CAPLM
41:SCIR
40:NC/ASG
39:NC
38:NC
37:NC
33 AHVSUP
32 NC
31 SCOL
30 SCOR
29 VREF1
28 TP
27 DACML
26 DACMR
25 VREF2
24 TP
23 TP
12:SCL
13:SDA
22:RESETQ
12 13 14 15 16 17 18 19 20 21 22
TP TP TP TP TP DVSUP DVSS TP
C929 1μ
R923 10k
R925 100
R926 100
C930 CH ***
C931 CH ***
R924 0
GND

A 4/4

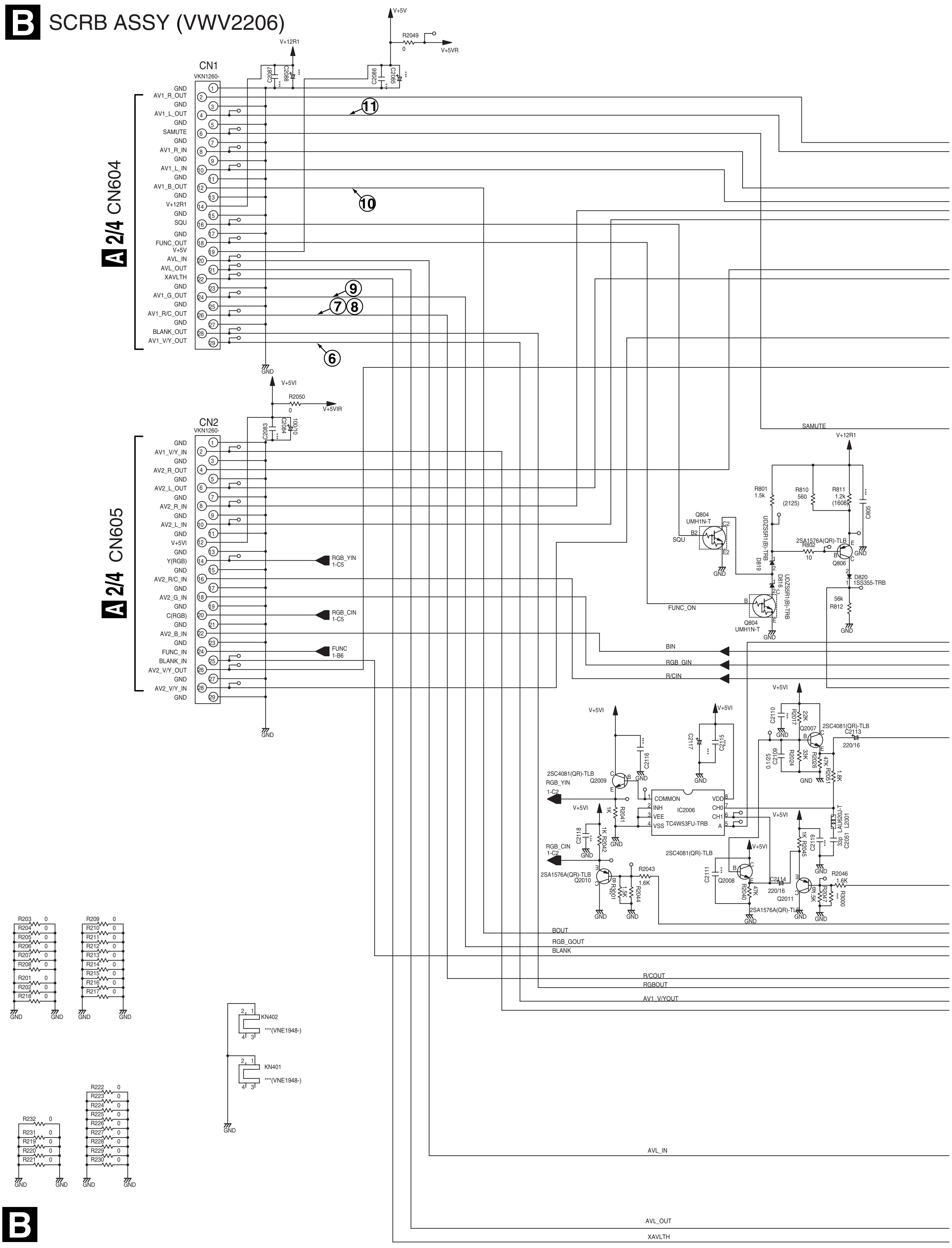

V+31V
V+5TU
V+5R8E
R302
10(2125)
R304
10(2125)
R5012
12(2125)
R6317
0
R303
12(2125)
Q6001
UMF21N-TLB
C
E
B
R6002
1K
C2
B2
E2
GND
TU_CON
RFTHRU
SCL
SDA
AGC
XRST1
STACHG
A 1/4
TU_VIN
TU_RIN
TU_LIN
A 2/4
R917
1k
C923
0.01
YB
R918
3.3k
R919
3.3k
Q903
2SA1576A(QR)-TLB
C924
3900p
C925
560p
CH
R920
1k
C926
0.01
R921
3.3k
R922
3.3k
Q904
2SA1576A(QR)-TLB
C927
3900p
C928
560p
GND


UMF21N
C
B2
E2
E
B
C2

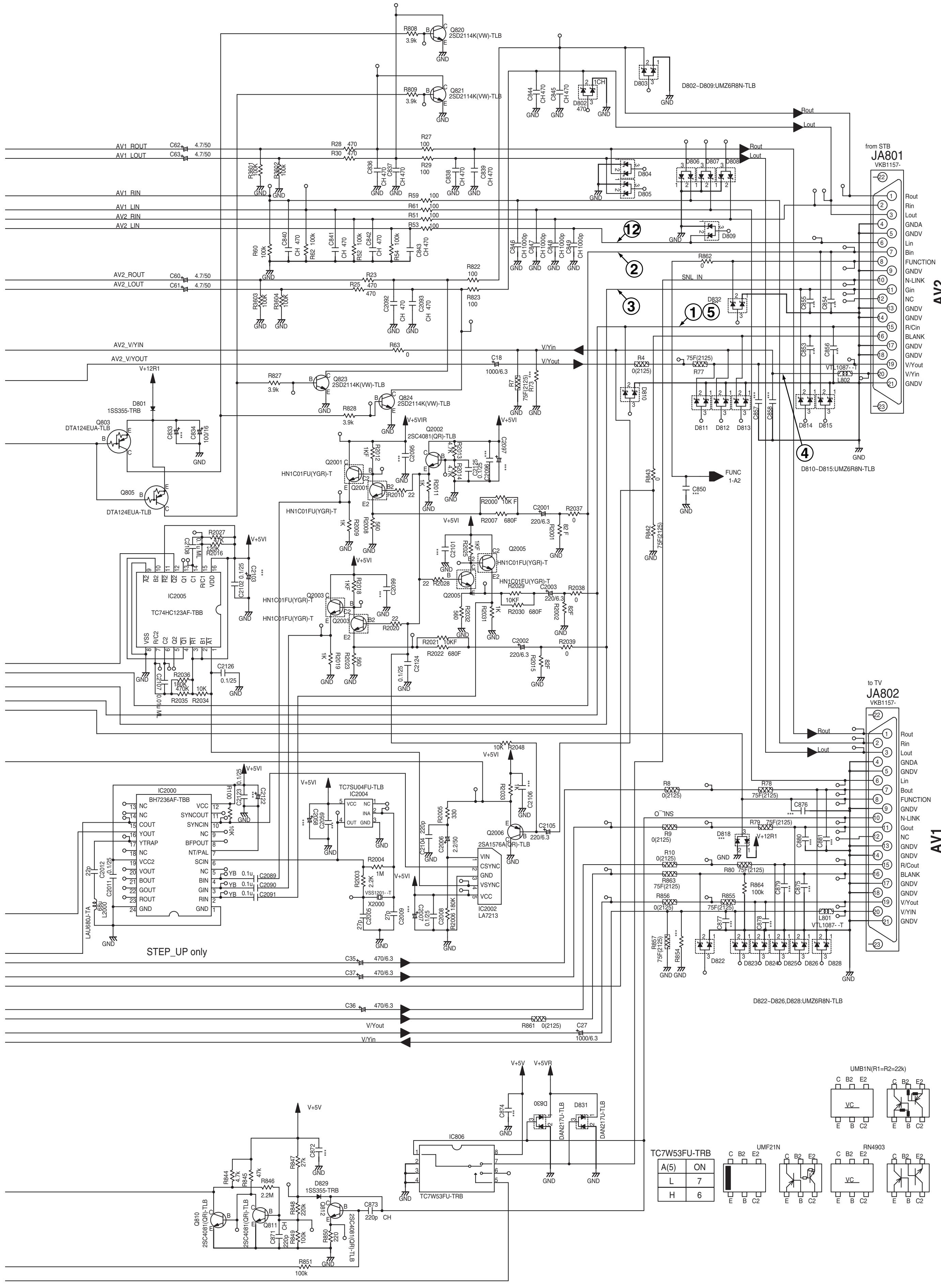
A 4/4

3.7 SCRB ASSY

B SCRB ASSY (VWV2206)



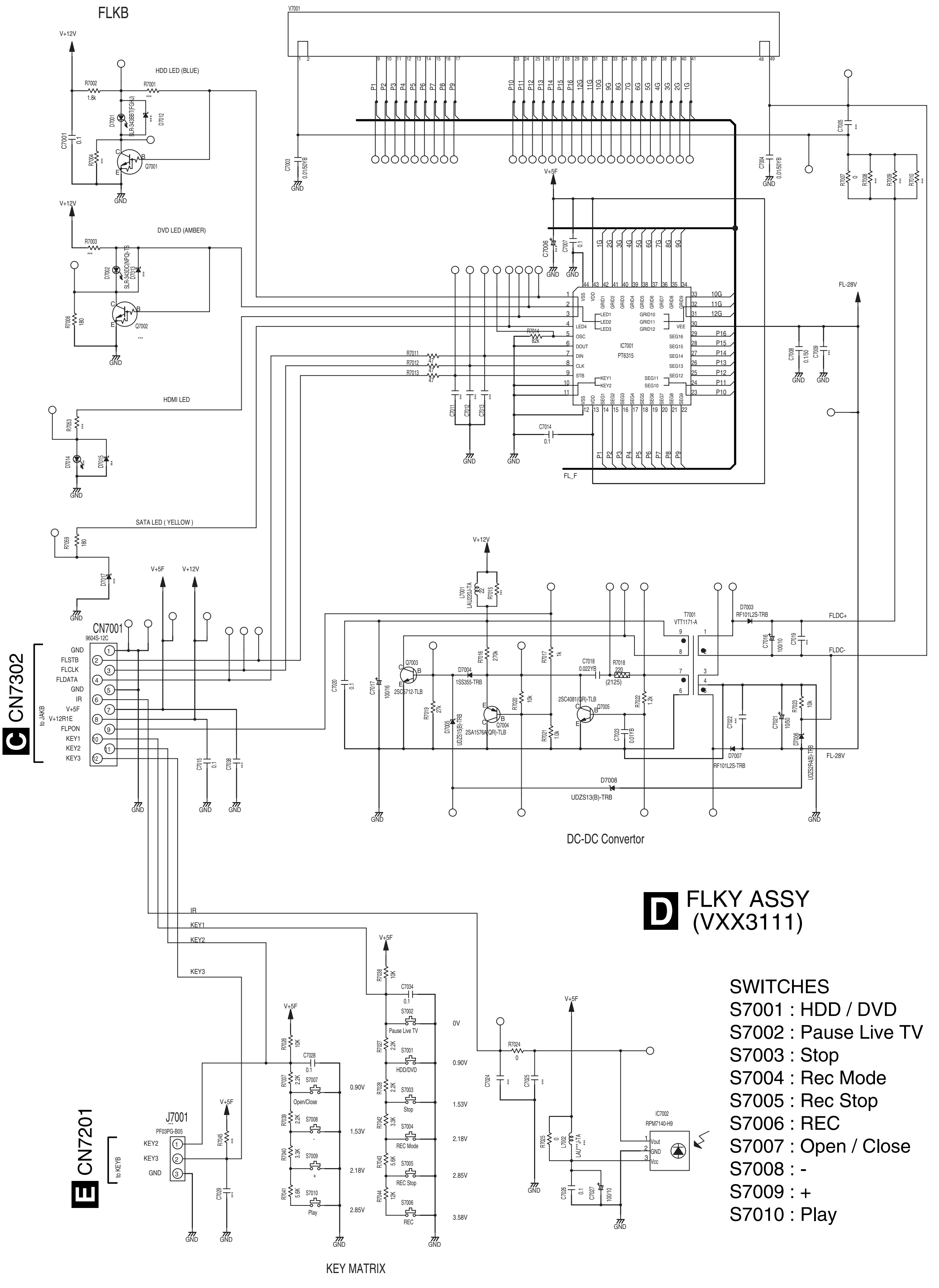
A 2/4 CN604
CN1
VKN1260-
GND
AV1_R_OUT
AV1_L_OUT
SAMUTE
AV1_R_IN
AV1_L_IN
AV1_B_OUT
V+12R1
SQU
FUNC_OUT
V+5V
AVL_IN
AVL_OUT
XAVLTH
AV1_G_OUT
AV1_R/C_OUT
BLANK_OUT
AV1_V/Y_OUT
C2087
C2088
C2086
C2085
V+5V
R2049
0
V+5VR
11
10
9
7
8
6
A 2/4 CN605
CN2
VKN1260-
V+5VI
R2050
0
V+5VIR
C2083
C2084
100/10
AV1_V/Y_IN
AV2_R_OUT
AV2_L_OUT
AV2_R_IN
AV2_L_IN
V+5VI
Y(RGB)
AV2_R/C_IN
AV2_G_IN
C(RGB)
AV2_B_IN
FUNC_IN
BLANK_IN
AV2_V/Y_OUT
AV2_V/Y_IN
RGB_YIN 1-C5
RGB_CIN 1-C5
FUNC 1-B6
SAMUTE
V+12R1
R801 1.5k
R810 560 (2125)
R811 1.2k (1608)
C805
Q804 UMH1N-T
SQU
UDZS5R1(B)-TRB D819
2SA1576A(QR)-TLB
R802 10
Q806
D820 1SS355-TRB
56k R812
UDZS5R1(B)-TRB D816
FUNC_ON
Q804 UMH1N-T
BIN
RGB_GIN
R/CIN
V+5VI
C2110
R2017 22K
Q2007
2SC4081(QR)-TLB
C2113 220/16
C2109 0.1/25
R2024 33K
R2026 47K
R2051 1.8K
C2116
C2117
C2115
2SC4081(QR)-TLB
RGB_YIN 1-C2
Q2009
COMMON
INH
VEE
VSS
VDD
CH0
CH1
A
IC2006
TC4W53FU-TRB
R2041 1K
C2118
R2042 1K
RGB_CIN 1-C2
2SA1576A(QR)-TLB
Q2010
R3001
R2043 1.6K
R2044 1.5K
2SC4081(QR)-TLB
C2111
Q2008
R2040 47K
C2114 220/16
Q2011
2SA1576A(QR)-TLB
R2045 1K
C2119
LAU820J-T L2001
C2051 33p
R2046 1.6K
R2047 1.5K
R3000
BOUT
RGB_GOUT
BLANK
R/COUT
RGBOUT
AV1_V/YOUT
AVL_IN
AVL_OUT
XAVLTH
R203 0
R204 0
R205 0
R206 0
R207 0
R208 0
R201 0
R202 0
R218 0
R209 0
R210 0
R211 0
R212 0
R213 0
R214 0
R215 0
R216 0
R217 0
KN402 ***(VNE1948-)
KN401 ***(VNE1948-)
R222 0
R223 0
R224 0
R225 0
R226 0
R227 0
R228 0
R229 0
R230 0
R232 0
R231 0
R219 0
R220 0
R221 0
GND


AV1_ROUT
AV1_LOUT
AV1_RIN
AV1_LIN
AV2_RIN
AV2_LIN
AV2_ROUT
AV2_LOUT
AV2_V/YIN
AV2_V/YOUT
V+12R1
Q820 2SD2114K(VW)-TLB
Q821 2SD2114K(VW)-TLB
Q823 2SD2114K(VW)-TLB
Q824 2SD2114K(VW)-TLB
Q803 DTA124EUA-TLB
Q805 DTA124EUA-TLB
D801 1SS355-TRB
D802~D809:UMZ6R8N-TLB
D810~D815:UMZ6R8N-TLB
D822~D826,D828:UMZ6R8N-TLB
from STB
JA801
VKB1157-
AV2
Rout
Rin
Lout
GNDA
GNDV
Lin
Bin
FUNCTION
N-LINK
Gin
NC
R/Cin
BLANK
V/Yout
V/Yin
SNL_IN
FUNC 1-A2
V/Yin
V/Yout
to TV
JA802
VKB1157-
AV1
Bout
Gout
R/Cout
V/YIN
Q2001 HN1C01FU(YGR)-T
Q2002 2SC4081(QR)-TLB
Q2003 HN1C01FU(YGR)-T
Q2005 HN1C01FU(YGR)-T
Q2006 2SA1576A(QR)-TLB
IC2005 TC74HC123AF-TBB
IC2000 BH7236AF-TBB
IC2004 TC7SU04FU-TLB
IC2002 LA7213
X2000
L2000 LAU680J-TA
STEP_UP only
V+5VI
V+5VIR
V+5V
V+5VR
IC806 TC7W53FU-TRB
D830 DAN217U-TLB
D831 DAN217U-TLB
D829 1SS355-TRB
Q810 2SC4081(QR)-TLB
Q811 2SC4081(QR)-TLB
Q812 2SC4081(QR)-TLB
UMB1N(R1=R2=22k)
UMF21N
RN4903
C B2 E2
E B C2
VC
①⑤ ② ③ ④ ⑫

TC7W53FU-TRB

A(5)	ON
L	7
H	6

3.8 FJKB, FLKY and KEYB ASSYS


FLKB
V+12V
HDD LED (BLUE)
DVD LED (AMBER)
HDMI LED
SATA LED (YELLOW)
V7001
IC7001
PT6315
CN7001
9604S-12C
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
KEY3
C CN7302
to JAKB
T7001
VTT1171-A
FLDC+
FLDC-
FL-28V
FL_F
DC-DC Convertor
IR
KEY1
KEY2
KEY3
J7001
PF03PG-B05
E CN7201
to KEYB
IC7002
RPM7140-H9
Vout
GND
Vcc
KEY MATRIX
S7001-S7010: VSG1024-A-T
0V
0.90V
1.53V
2.18V
2.85V
3.58V
Pause Live TV
HDD/DVD
Stop
REC Mode
REC Stop
REC
Open/Close
-
+
Play

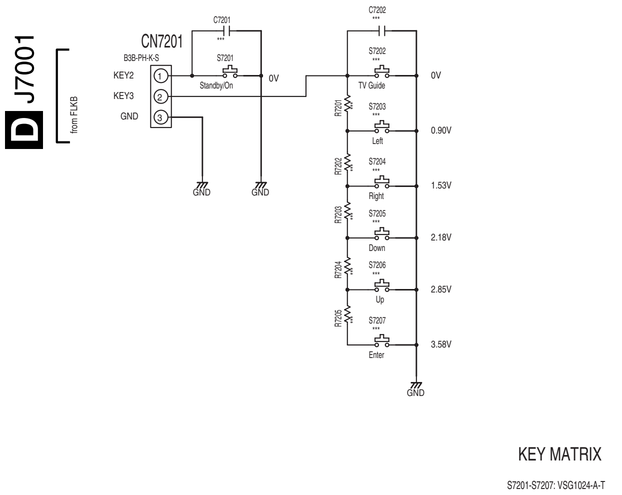
D FLKY ASSY
(VXX3111)

SWITCHES
S7001 : HDD / DVD
S7002 : Pause Live TV
S7003 : Stop
S7004 : Rec Mode
S7005 : Rec Stop
S7006 : REC
S7007 : Open / Close
S7008 : -
S7009 : +
S7010 : Play

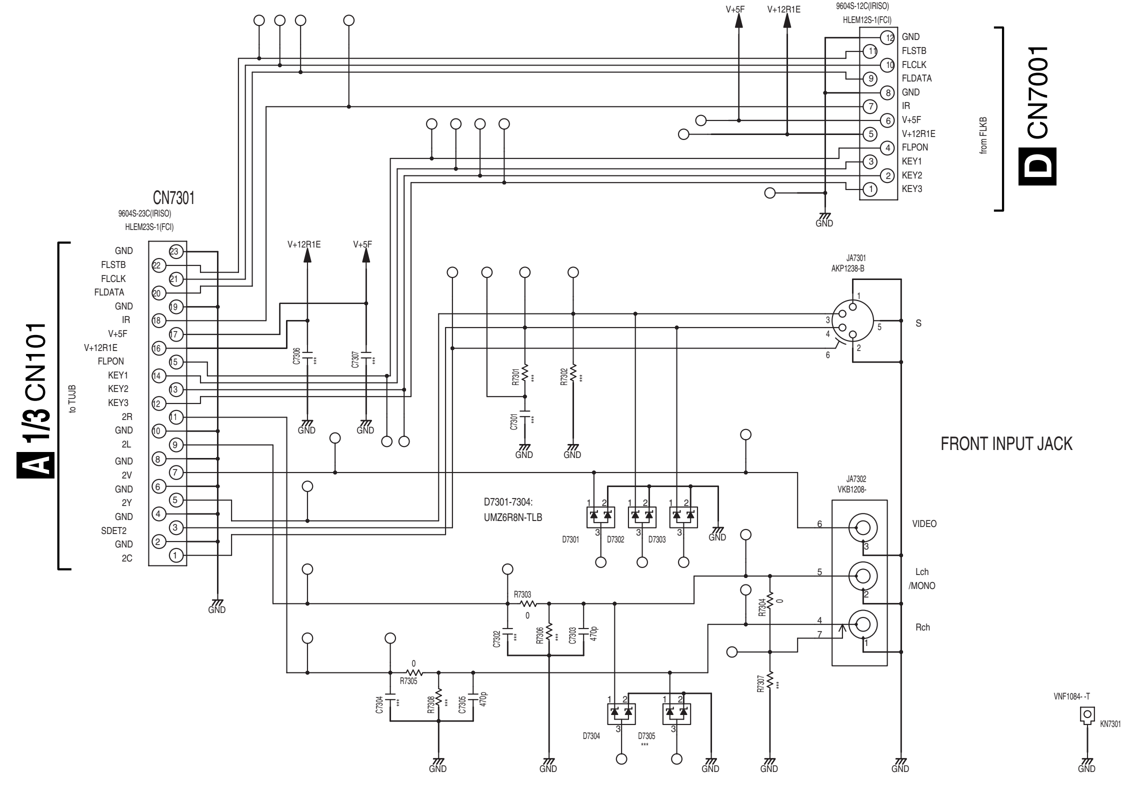
D

E KEYB ASSY (VXX3112)

SWITCHES
S7201 : Standby / On

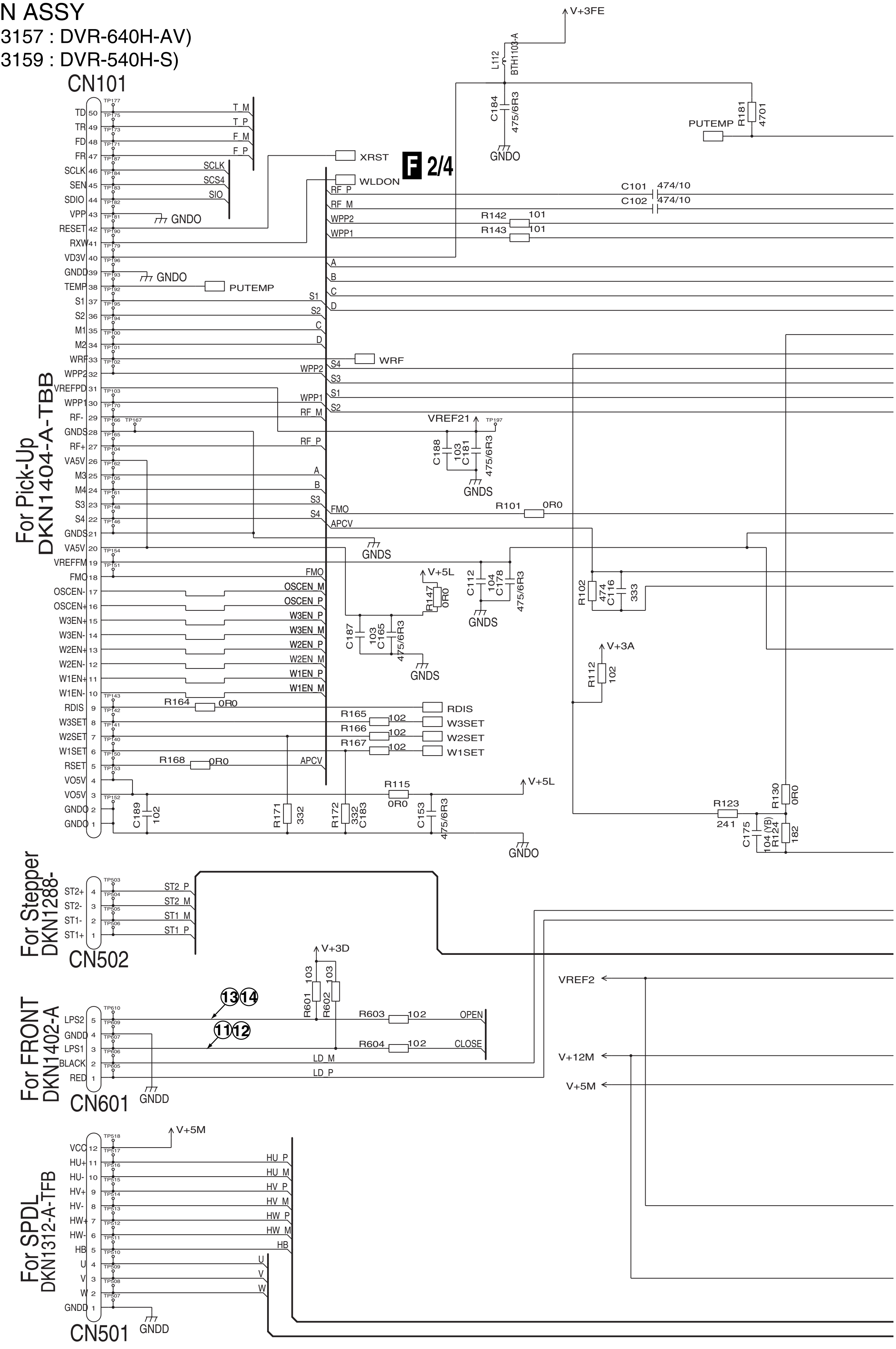

D J7001
from FLKB
CN7201
B3B-PH-K-S
KEY2
KEY3
GND
1
2
3
C7201
***
S7201
Standby/On
0V
GND
GND
C7202
***
S7202
***
TV Guide
0V
R7201
S7203
***
Left
0.90V
R7202
S7204
***
Right
1.53V
R7203
S7205
***
Down
2.18V
R7204
S7206
***
Up
2.85V
R7205
S7207
***
Enter
3.58V
GND
KEY MATRIX
S7201-S7207: VSG1024-A-T

C FJKB ASSY (VXX3113)

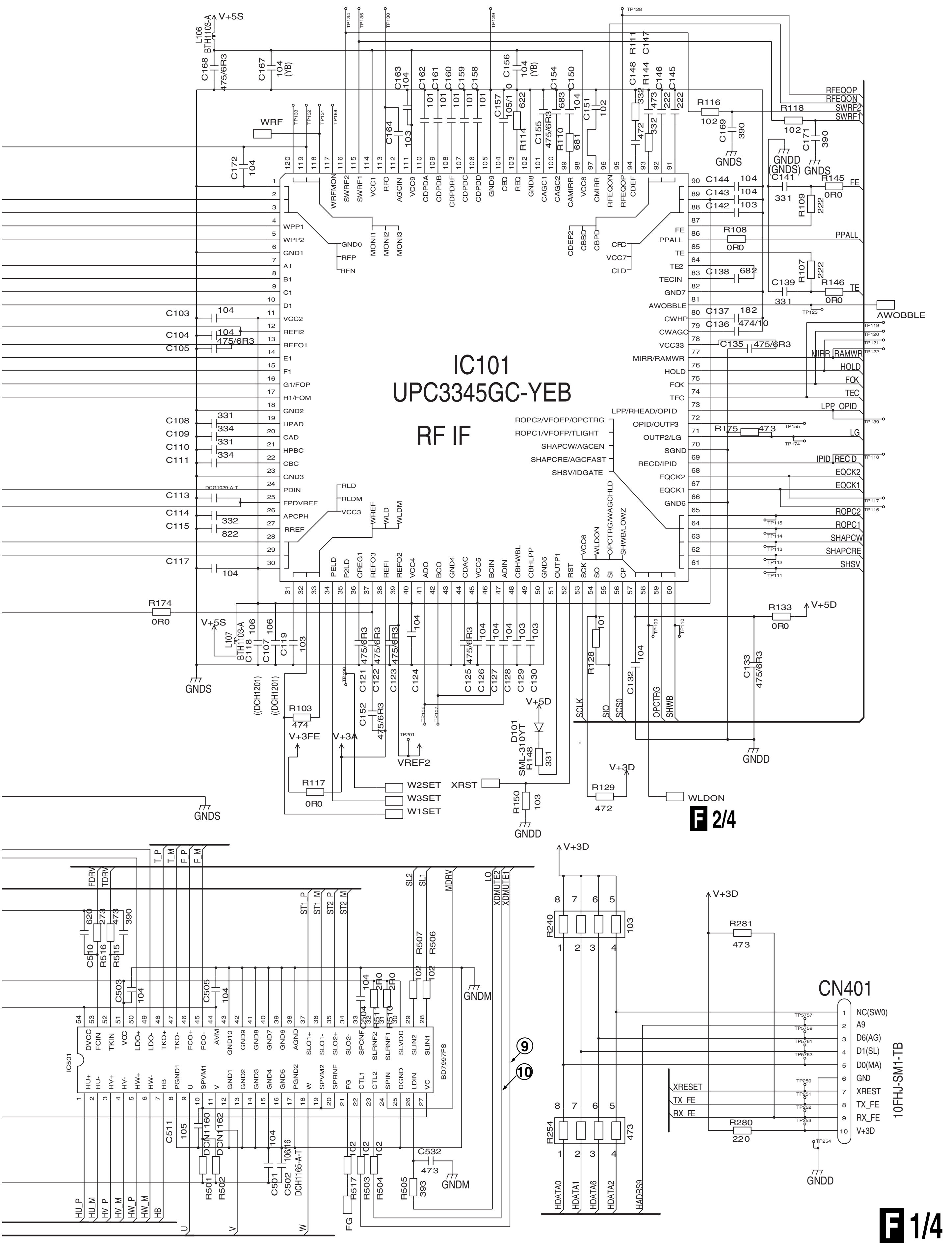

CN7302
9604S-12C(IRISO)
HLEM12S-1(FCI)
V+5F
V+12R1E
12 GND
11 FLSTB
10 FLCLK
9 FLDATA
8 GND
7 IR
6 V+5F
5 V+12R1E
4 FLPON
3 KEY1
2 KEY2
1 KEY3
GND
from FLKB
D CN7001
CN7301
9604S-23C(IRISO)
HLEM23S-1(FCI)
A 1/3 CN101
to TUJB
GND 23
FLSTB 22
FLCLK 21
FLDATA 20
GND 19
IR 18
V+5F 17
V+12R1E 16
FLPON 15
KEY1 14
KEY2 13
KEY3 12
2R 11
GND 10
2L 9
GND 8
2V 7
GND 6
2Y 5
GND 4
SDET2 3
GND 2
2C 1
GND
V+12R1E
V+5F
C7306
C7307
GND
GND
R7301
R7302
C7301
GND
GND
JA7301
AKP1238-B
1
2
3
4
5
6
S
FRONT INPUT JACK
D7301-7304:
UMZ6R8N-TLB
D7301
D7302
D7303
GND
JA7302
VKB1208-
6
5
4
7
3
2
1
VIDEO
Lch
/MONO
Rch
R7303
0
C7302
R7306
C7303
470p
R7304
0
R7307
0
R7305
C7304
R7308
C7305
470p
D7304
D7305
***
GND
GND
GND
GND
GND
VNF1084- -T
KN7301
GND

3.9 MAIN ASSY(1/4)

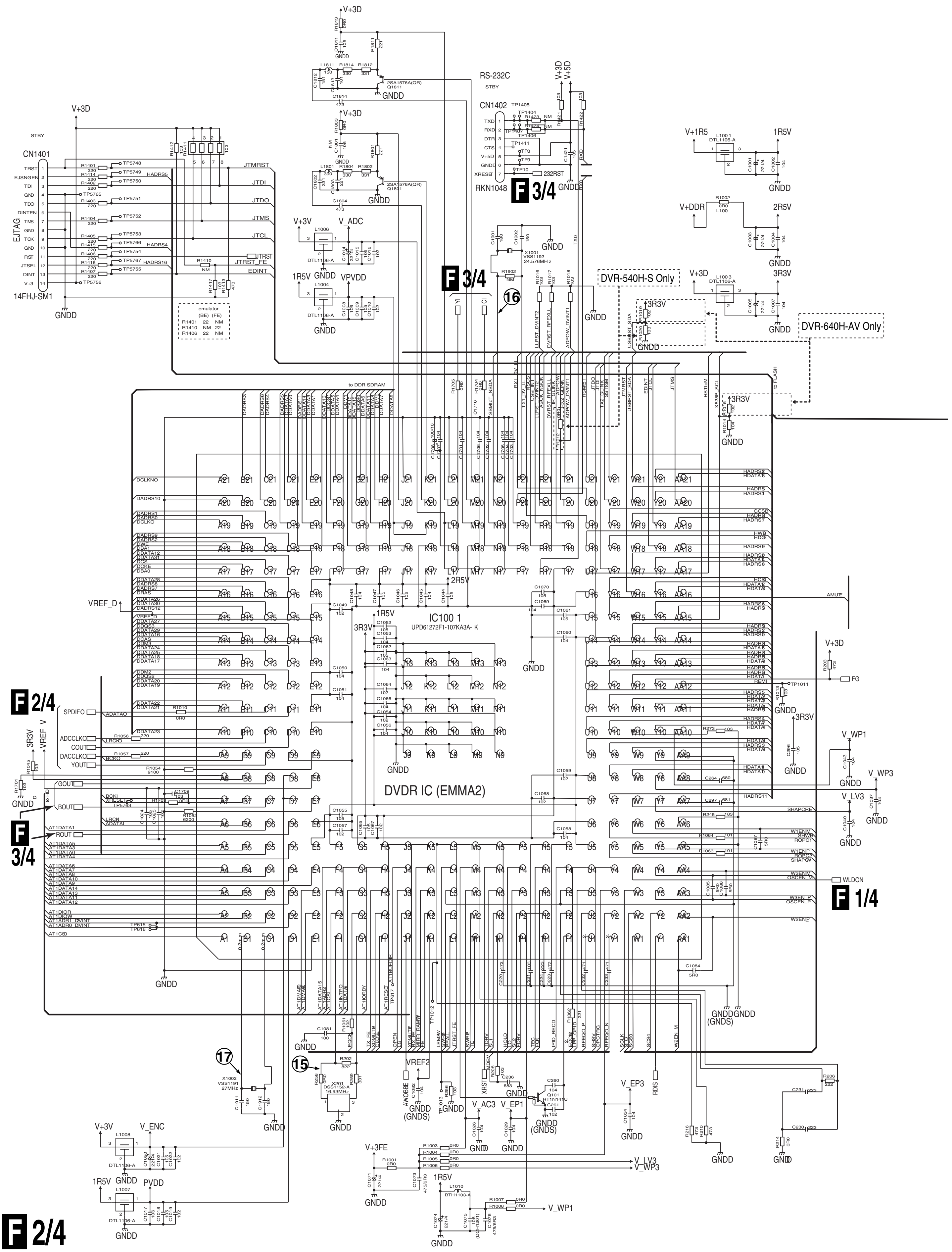
F 1/4 MAIN ASSY
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)


CN101
For Pick-Up
DKN1404-A-TBB
TD 50
TR 49
FD 48
FR 47
SCLK 46
SEN 45
SDIO 44
VPP 43
RESET 42
RXW 41
VD3V 40
GNDD 39
TEMP 38
S1 37
S2 36
M1 35
M2 34
WRF 33
WPP2 32
VREFPD 31
WPP1 30
RF- 29
GNDS 28
RF+ 27
VA5V 26
M3 25
M4 24
S3 23
S4 22
GNDS 21
VA5V 20
VREFFM 19
FMO 18
OSCEN- 17
OSCEN+ 16
W3EN+ 15
W3EN- 14
W2EN+ 13
W2EN- 12
W1EN+ 11
W1EN- 10
RDIS 9
W3SET 8
W2SET 7
W1SET 6
RSET 5
VO5V 4
VO5V 3
GNDO 2
GNDO 1
T_M
T_P
F_M
F_P
SCLK
SCS4
SIO
GNDO
PUTEMP
XRST
WLDON
F 2/4
RF_P
RF_M
WPP2
WPP1
A
B
C
D
S4
S3
S1
S2
WRF
FMO
APCV
OSCEN_M
OSCEN_P
W3EN_P
W3EN_M
W2EN_P
W2EN_M
W1EN_P
W1EN_M
V+3FE
L112
BTH1103-A
C184
475/6R3
R181
4701
C101 474/10
C102 474/10
R142 101
R143 101
VREF21
TP197
C188 103
C181 475/6R3
GNDS
R101 0R0
V+5L
R147 0R0
C112 104
C178 475/6R3
R102 474
C116 333
C187 103
C165 475/6R3
V+3A
R112 102
R164 0R0
R165 102
R166 102
R167 102
R168 0R0
RDIS
W3SET
W2SET
W1SET
R115 0R0
V+5L
C189 102
R171 332
R172 332
C183
C153 475/6R3
R123 241
R130 0R0
C175 104 (YB)
R124 182
GNDO
CN502
For Stepper
DKN1288-
ST2+ 4
ST2- 3
ST1- 2
ST1+ 1
ST2_P
ST2_M
ST1_M
ST1_P
V+3D
R601 103
R602 103
R603 102
R604 102
OPEN
CLOSE
⑬⑭
⑪⑫
CN601
For FRONT
DKN1402-A
LPS2 5
GNDD 4
LPS1 3
BLACK 2
RED 1
LD_M
LD_P
GNDD
VREF2
V+12M
V+5M
CN501
For SPDL
DKN1312-A-TFB
V+5M
VCC 12
HU+ 11
HU- 10
HV+ 9
HV- 8
HW+ 7
HW- 6
HB 5
U 4
V 3
W 2
GNDD 1
HU_P
HU_M
HV_P
HV_M
HW_P
HW_M
HB
U
V
W
GNDD

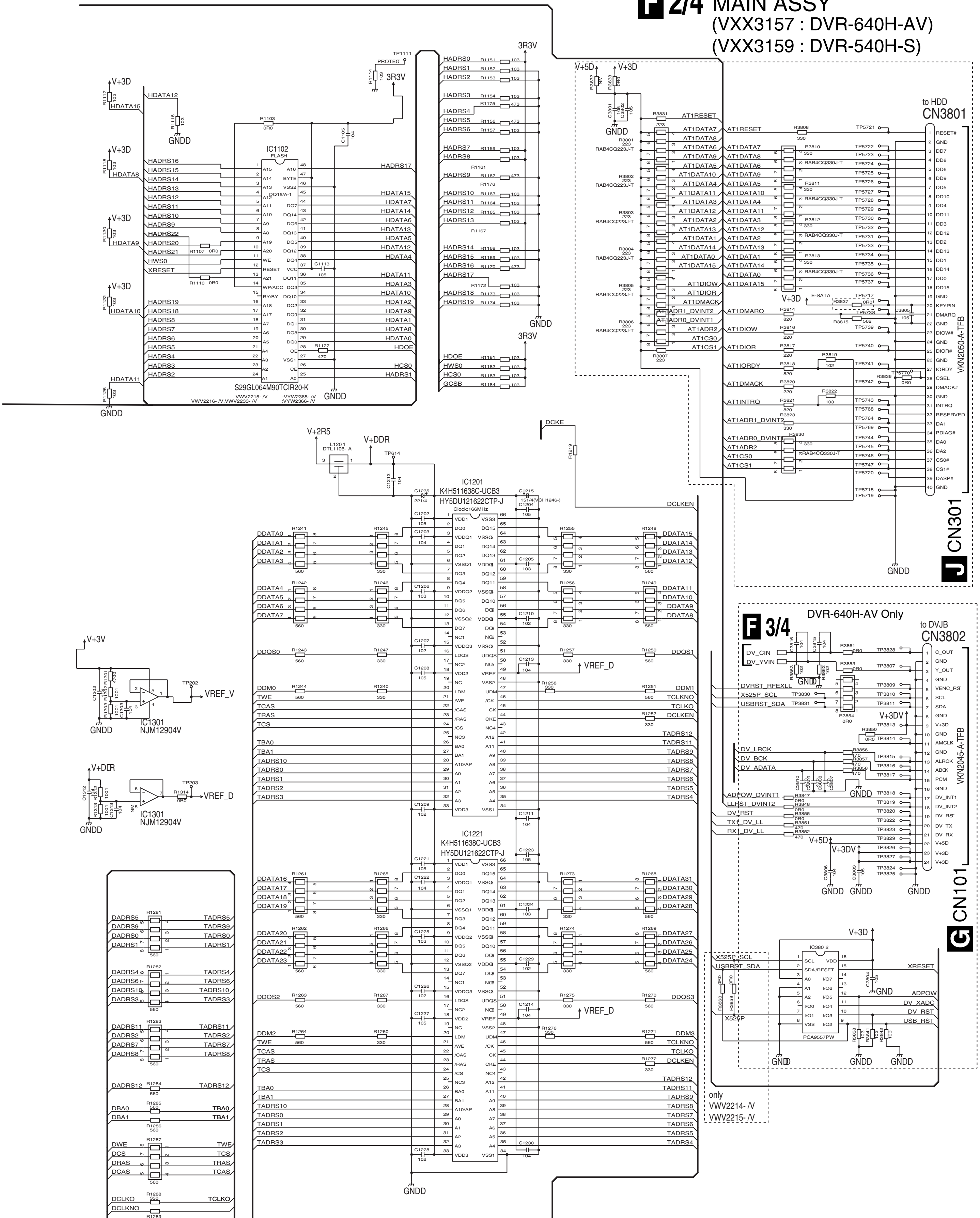
F 1/4


IC101
UPC3345GC-YEB
RF IF
IC501
BD7997FS
CN401
10FHJ-SM1-TB
NC(SW0)
A9
D6(AG)
D1(SL)
D0(MA)
GND
XREST
TX_FE
RX_FE
V+3D
V+5S
V+5D
V+3D
V+3FE
V+3A
VREF2
GNDS
GNDD
GNDM
L106 BTH1103-A
L107 BTH1103-A
WRF
RFEQOP
RFEQON
SWRF2
SWRF1
FE
PPALL
TE
AWOBBLE
MIRR
RAMWR
HOLD
FCK
TEC
LPP
OPID
LG
IPID
RECD
EQCK2
EQCK1
ROPC2
ROPC1
SHAPCW
SHAPCRE
SHSV
SCLK
SIO
SCS0
OPCTRG
SHWB
W2SET
W3SET
W1SET
XRST
WLDON
D101 SML-310YT
R148 331
R150 103
R129 472
R133 0R0
R174 0R0
R103 474
R117 0R0
R116 102
R118 102
R145 0R0
R146 0R0
R108 0R0
R175 473
R240 103
R254 473
R281 473
R280 220
XRESET
TX_FE
RX_FE
HDATA0
HDATA1
HDATA6
HDATA2
HADRS9
T_P
T_M
F_P
F_M
FDRV
TDRV
SL2
SL1
MDRV
LO
XDMUTE2
XDMUTE1
ST1_P
ST1_M
ST2_P
ST2_M
HU_P
HU_M
HV_P
HV_M
HW_P
HW_M
HB
U
V
W
FG
DCN1160
DCN1162
DCH1165-A-T
(DCH1201)
9
10
F 2/4
F 1/4

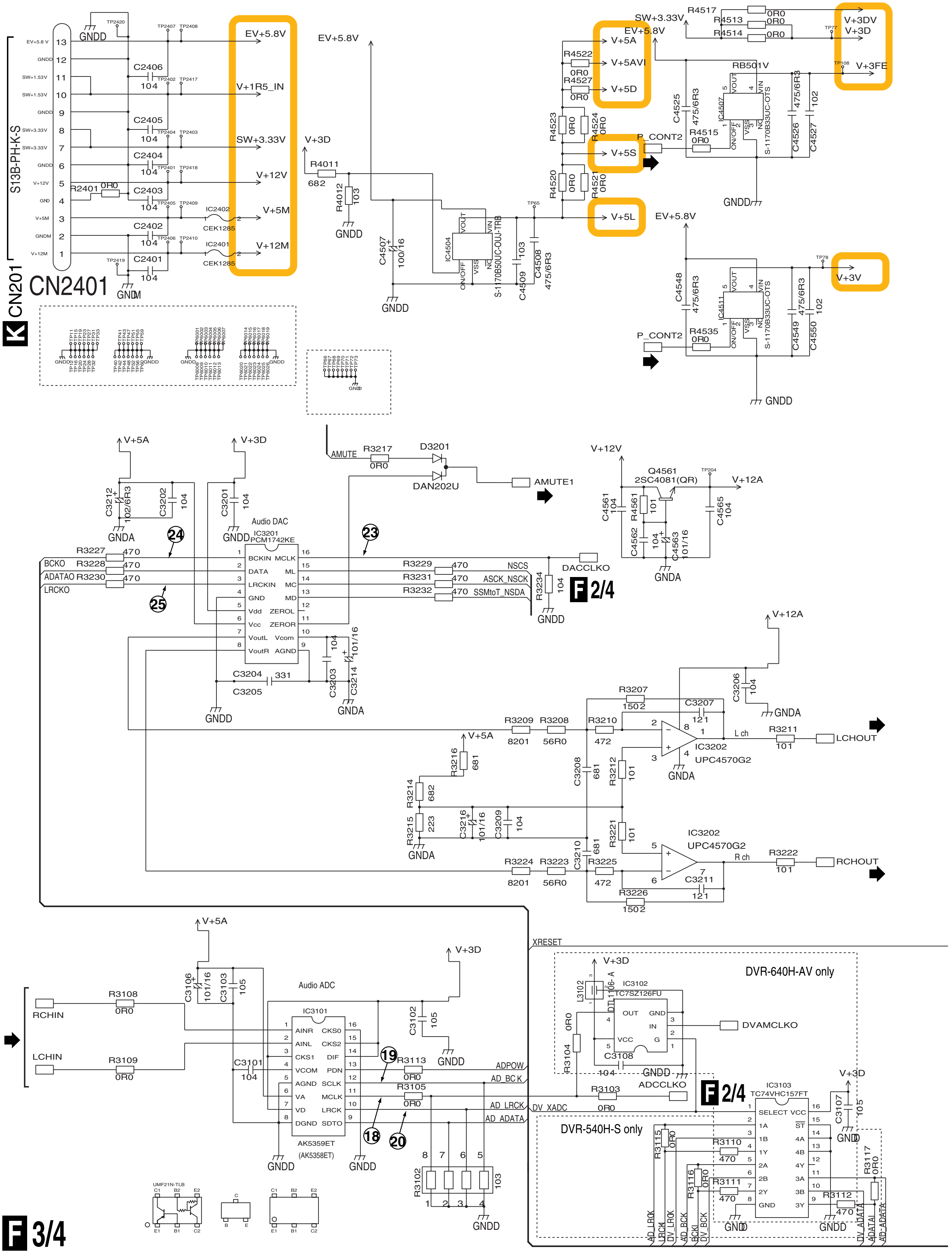
3.10 MAIN ASSY(2/4)


A
B
C
D
E
F
V+3D
STBY
CN1401
EJTAG
TRST
EJSNGEN
TDI
GND
TDO
DINTEN
TMS
TCK
RST
JTSEL
DINT
V+3
14FHJ-SM1
GNDD
JTMRST
JTDI
JTDO
JTMS
JTCL
JTRST
JTRST_FE
EDINT
HADRS5
HADRS4
HADRS16
emulator
(BE) (FE)
R1401 22 NM
R1410 NM 22
R1406 22 NM
2SA1576A(QR)
Q1811
Q1801
V+3V
V_ADC
1R5V
VPVDD
L1006
L1004
DTL1106-A
RS-232C
STBY
CN1402
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET
RKN1048
232RST
V+3D
V+5D
F 3/4
X1001
VSS1192
24.576MHz
YI
CI
⑯
DVR-540H-S Only
DVR-640H-AV Only
3R3V
V+1R5
1R5V
L1001
V+DDR
2R5V
L1002
L1003
to DDR SDRAM
to FLASH
VREF_D
2R5V
1R5V
3R3V
IC100 1
UPD61272F1-107KA3A- K
DVDR IC (EMMA2)
F 2/4
SPDIFO
ADCCLKO
COUT
DACCLKO
YOUT
GOUT
BOUT
ROUT
F 3/4
V+3D
FG
TP1011
3R3V
V_WP1
V_WP3
V_LV3
WLDON
F 1/4
AMUTE
⑰
X1002
VSS1191
27MHz
⑮
X201
DSS1132-A
16.93MHz
VREF2
AWOBBLE
GNDD
(GNDS)
V_AC3
V_EP1
V_EP3
Q101
RT1N141U
RDIS
XRST
V+3V
V_ENC
L1008
1R5V
PVDD
L1007
V+3FE
V_LV3
V_WP3
1R5V
L1010
BTH1103-A
V_WP1
F 2/4
GNDD

F 2/4 MAIN ASSY
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)

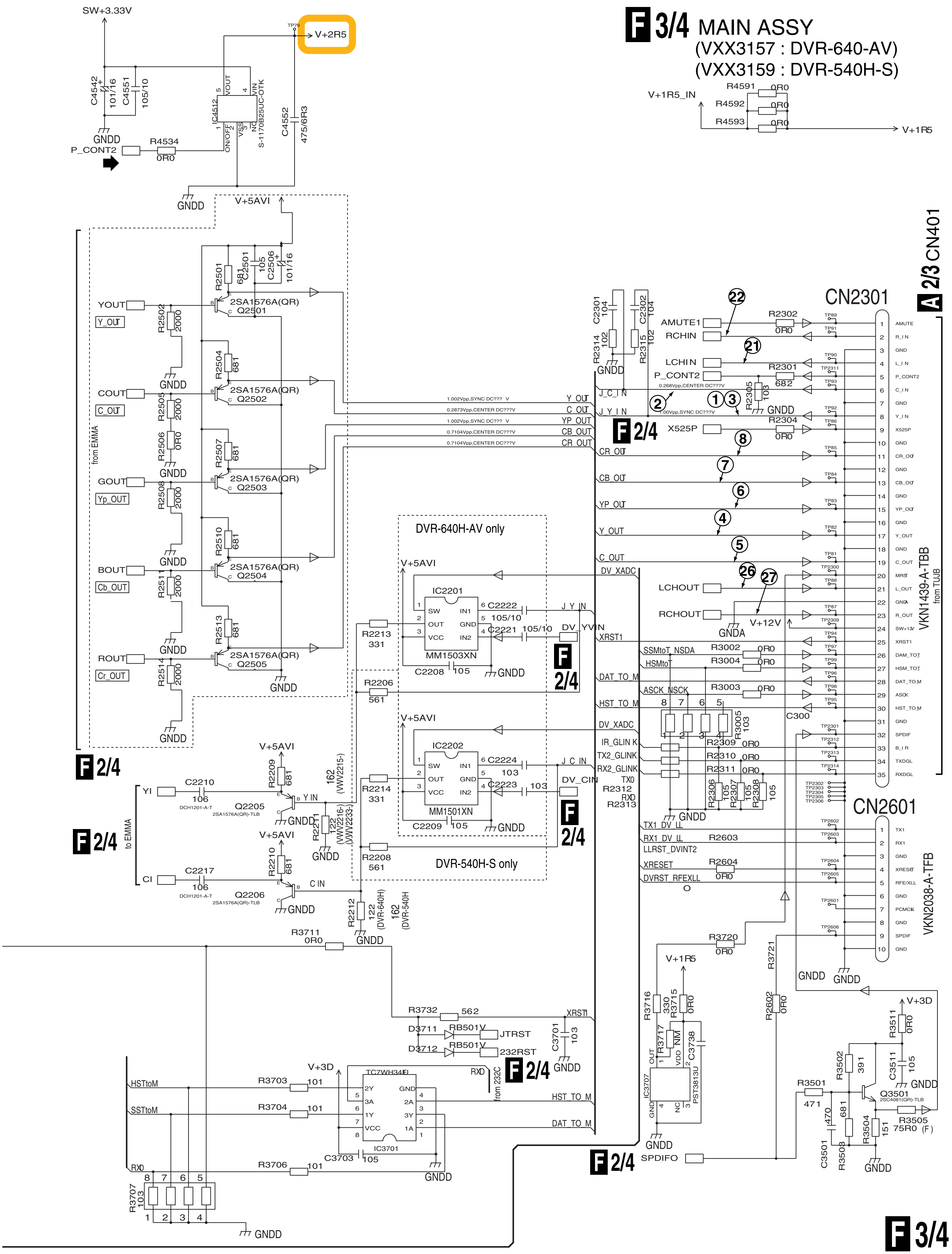

IC1102
FLASH
S29GL064M90TCIR20-K
VWV2215- /V :VYW2365- /V
VWV2216- /V,VWV2233- /V :VYW2366- /V
HADRS0–HADRS22
HDATA0–HDATA15
HDOE
HWS0
HCS0
GCSB
XRESET
3R3V
V+3D
GNDD
TP1111
PROTECT
IC1201
K4H511638C-UCB3
HY5DU121622CTP-J
Clock:166MHz
IC1221
K4H511638C-UCB3
HY5DU121622CTP-J
L1201
DTL1106- A
V+2R5
V+DDR
DCKE
DCLKEN
DDATA0–DDATA31
DDQS0
DDQS1
DDQS2
DDQS3
DDM0
DDM1
DDM2
DDM3
TWE
TCAS
TRAS
TCS
TBA0
TBA1
TADRS0–TADRS12
TCLKNO
TCLKO
VREF_D
VREF_V
IC1301
NJM12904V
to HDD
CN3801
VKN2050-A-TFB
J CN301
AT1RESET
AT1DATA0–AT1DATA15
AT1DIOW
AT1DIOR
AT1DMACK
AT1DMARQ
AT1IORDY
AT1INTRQ
AT1ADR0_DVINT1
AT1ADR1_DVINT2
AT1ADR2
AT1CS0
AT1CS1
RAB4CQ223J-T
RAB4CQ330J-T
E-SATA
RESET#
DD0–DD15
DMARQ
DIOW#
DIOR#
IORDY
CSEL
DMACK#
INTRQ
RESERVED
DA0
DA1
DA2
PDIAG#
CS0#
CS1#
DASP#
KEYPIN
F 3/4
DVR-640H-AV Only
to DVJB
CN3802
VKN2045-A-TFB
G CN101
C_OUT
Y_OUT
VENC_RST
SCL
SDA
AMCLK
ALRCK
ABCK
PCM
DV_INT1
DV_INT2
DV_RST
DV_TX
DV_RX
V+5D
V+3D
DV_CIN
DV_YVIN
DVRST_RFEXLL
X525P_SCL
USBRST_SDA
DV_LRCK
DV_BCK
DV_ADATA
ADPOW_DVINT1
LLRST_DVINT2
DV_RST
TX1_DV_LL
RX1_DV_LL
IC3802
PCA9557PW
XRESET
ADPOW
DV_XADC
DV_RST
USB_RST
X525P
only
VWV2214- /V
VWV2215- /V
V+3DV

3.11 MAIN ASSY(3/4)

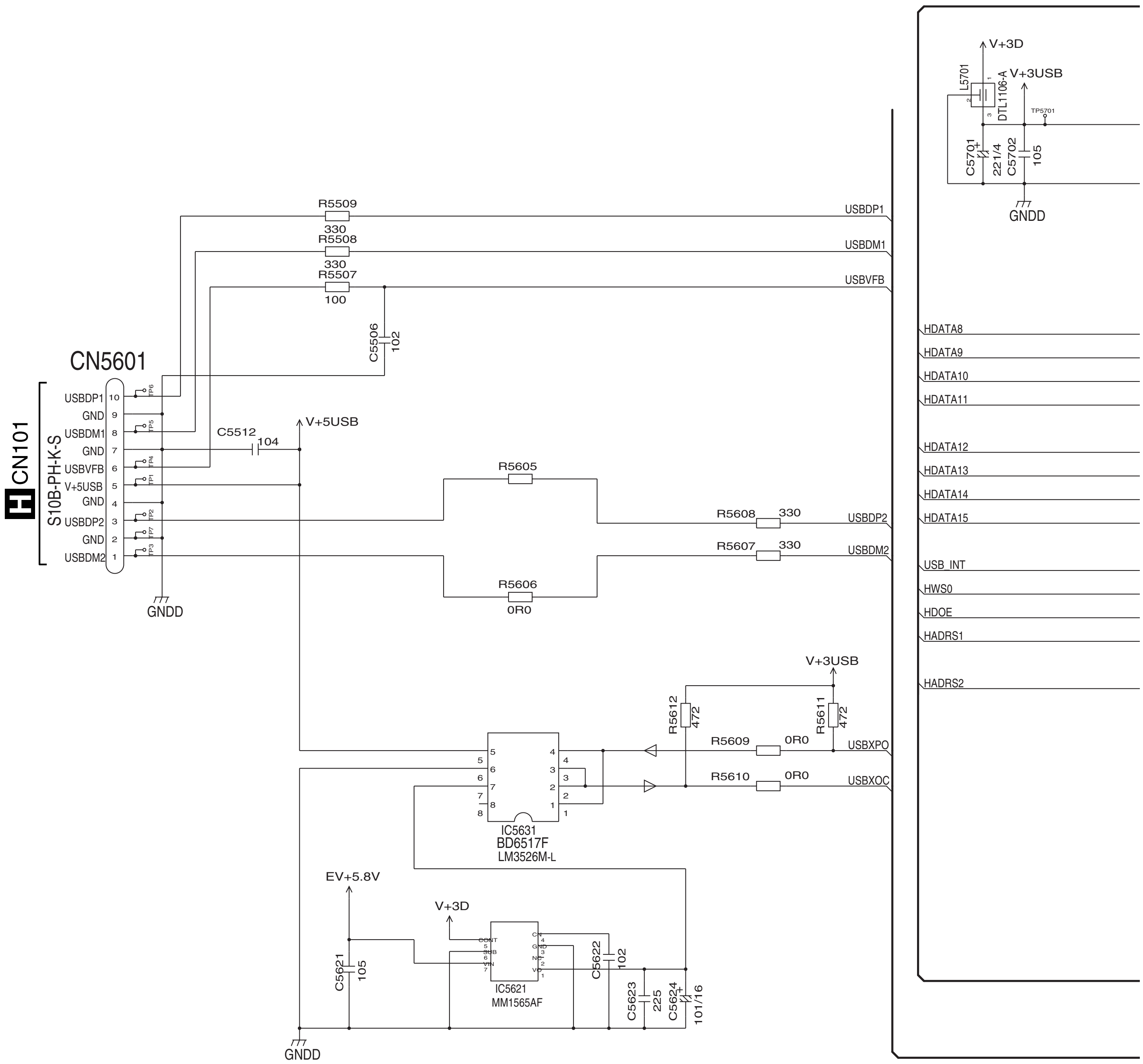


S13B-PH-K-S
CN2401
K CN201
EV+5.8V
V+1R5_IN
SW+3.33V
V+12V
V+5M
V+12M
GNDD
GNDM
C2401 104
C2402 104
C2403 104
C2404 104
C2405 104
C2406 104
R2401 0R0
IC2401 CEK1285
IC2402 CEK1285
V+3D
R4011 682
R4012 103
C4507 100/16
IC4504 S-1170B50UC-OUJ-TRB
C4509 103
C4508 475/6R3
V+5A
V+5AVI
V+5D
V+5S
V+5L
R4522 0R0
R4527 0R0
R4523 0R0
R4524 0R0
R4520 0R0
R4521 0R0
P_CONT2
R4517 0R0
R4513 0R0
R4514 0R0
V+3DV
V+3D
V+3FE
RB501V
C4525 475/6R3
IC4507 S-1170B33UC-OTS
R4515 0R0
C4526 475/6R3
C4527 102
V+3V
C4548 475/6R3
IC4511 S-1170B33UC-OTS
R4535 0R0
C4549 475/6R3
C4550 102
AMUTE
R3217 0R0
D3201 DAN202U
AMUTE1
V+12V
Q4561 2SC4081(QR)
V+12A
C4561 104
R4561 101
C4562 104
C4563 101/16
C4565 104
GNDA
C3212 102/6R3
C3202 104
C3201 104
Audio DAC
IC3201 PCM1742KE
BCKO
ADATAO
LRCKO
R3227 470
R3228 470
R3230 470
R3229 470
R3231 470
R3232 470
NSCS
ASCK_NSCK
SSMtoT_NSDA
DACCLKO
R3234 104
F 2/4
C3204 331
C3205
C3203 104
C3214 101/16
C3206 104
R3207 1502
C3207 121
R3209 8201
R3208 56R0
R3210 472
R3211 101
LCHOUT
IC3202 UPC4570G2
R3216 681
R3212 101
C3208 681
R3214 682
R3215 223
C3216 101/16
C3209 104
R3221 101
C3210 681
R3224 8201
R3223 56R0
R3225 472
R3222 101
RCHOUT
C3211 121
R3226 1502
L ch
R ch
XRESET
DVR-640H-AV only
IC3102 TC7SZ126FU
L3102 DTL1106-A
DVAMCLKO
R3104 0R0
C3108 104
R3103 0R0
ADCCLKO
F 2/4
IC3103 TC74VHC157FT
C3107 105
DVR-540H-S only
R3115 0R0
R3110 470
R3116 0R0
R3111 470
R3117 0R0
R3112 470
DV_XADC
AD_LRCK
AD_ADATA
AD_BCK
ADPOW
C3106 101/16
C3103 105
Audio ADC
IC3101 AK5359ET (AK5358ET)
RCHIN
LCHIN
R3108 0R0
R3109 0R0
C3101 104
C3102 105
R3113 0R0
R3105 0R0
R3102 103
UMF21N-TLB
F 3/4

F 3/4 MAIN ASSY
(VXX3157 : DVR-640-AV)
(VXX3159 : DVR-540H-S)


A
B
C
D
E
F
SW+3.33V
TP79
V+2R5
C4542 101/16
C4551 105/10
IC4512
S-1170B25UC-OTK
VOUT
VIN
ON/OFF
VSS
NC
C4552 475/6R3
GNDD
P_CONT2
R4534 0R0
V+5AVI
V+1R5_IN
R4591 0R0
R4592 0R0
R4593 0R0
V+1R5
R2501 681
C2501 105
C2506 101/16
YOUT
Y_OUT
R2502 2000
2SA1576A(QR) Q2501
R2504 681
COUT
C_OUT
R2505 2000
2SA1576A(QR) Q2502
R2506 0R0
R2507 681
GOUT
Yp_OUT
R2508 2000
2SA1576A(QR) Q2503
R2510 681
BOUT
Cb_OUT
R2511 2000
2SA1576A(QR) Q2504
R2513 681
ROUT
Cr_OUT
R2514 2000
2SA1576A(QR) Q2505
from EMMA
F 2/4
1.002Vpp,SYNC DC??? V
0.2873Vpp,CENTER DC???V
1.002Vpp,SYNC DC??? V
0.7104Vpp,CENTER DC???V
0.7104Vpp,CENTER DC???V
Y OUT
C OUT
YP OUT
CB OUT
CR OUT
J_C_I N
J_Y_I N
CR OUT
CB OUT
YP OUT
Y OUT
C OUT
DV_XADC
C2301 104
C2302 104
R2314 102
R2315 102
AMUTE1
RCHIN
LCHIN
P_CONT2
X525P
R2302 0R0
R2301 682
R2305 103
R2304 0R0
0.268Vpp,CENTER DC???V
1.00Vpp,SYNC DC???V
CN2301
A 2/3 CN401
VKN1439-A-TBB
from TUJB
1 AMUTE
2 R_IN
3 GND
4 L_IN
5 P_CONT2
6 C_IN
7 GND
8 Y_IN
9 X525P
10 GND
11 CR_OUT
12 GND
13 CB_OUT
14 GND
15 YP_OUT
16 GND
17 Y_OUT
18 GND
19 C_OUT
20 MRST
21 L_OUT
22 GNDA
23 R_OUT
24 SW+12V
25 XRST1
26 DAM_TOT
27 HSM_TOT
28 DAT_TO_M
29 ASCK
30 HST_TO_M
31 GND
32 SPDIF
33 B_I R
34 TXDGL
35 RXDGL
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ㉑ ㉒ ㉖ ㉗
DVR-640H-AV only
V+5AVI
IC2201
MM1503XN
SW
IN1
OUT
GND
VCC
IN2
C2222 105/10
C2221 105/10
C2208 105
J Y IN
DV_YVIN
R2213 331
R2206 561
GNDD
LCHOUT
RCHOUT
GNDA
V+12V
XRST1
SSMtoT_NSDA
HSMtoT
R3002 0R0
R3004 0R0
DAT_TO_M
ASCK_NSCK
R3003 0R0
HST_TO_M
R3005 103
C300
DV_XADC
IR_GLINK
TX2_GLINK
RX2_GLINK
TX0
RX0
R2309 0R0
R2310 0R0
R2311 0R0
R2312
R2313
R2306 105
R2307 105
R2308 105
V+5AVI
IC2202
MM1501XN
C2224 103
C2223 103
C2209 105
J C IN
DV_CIN
R2214 331
R2208 561
DVR-540H-S only
YI
C2210 106
R2209 681
Y IN
Q2205 DCH1201-A-T 2SA1576A(QR)-TLB
R2211 122 (VWV2216-) 162 (VWV2233-)
162 (VWV2215-)
to EMMA
CI
C2217 106
R2210 681
C IN
Q2206 DCH1201-A-T 2SA1576A(QR)-TLB
R2212 122 (DVR-640H) 162 (DVR-540H)
TX1_DV_LL
RX1_DV_LL
R2603
LLRST_DVINT2
XRESET
R2604 0R0
DVRST_RFEXLL
CN2601
VKN2038-A-TFB
1 TX1
2 RX1
3 GND
4 XRESET
5 RFE/XLL
6 GND
7 PCMCK
8 GND
9 SPDIF
10 GND
R3720 0R0
V+1R5
R3721
R3716 330
R3715 0R0
R3717 NM
C3738
IC3707 PST3813U
R2602 0R0
V+3D
R3511 0R0
C3511 105
R3502 391
R3501 471
Q3501 2SC4081(QR)-TLB
R3505 75R0 (F)
R3504 151
R3503 681
C3501 470
SPDIFO
R3711 0R0
R3732 562
XRST1
D3711 RB501V
JTRST
D3712 RB501V
232RST
C3701 103
RXD
232C from
HSTtoM
SSTtoM
RXD
R3703 101
R3704 101
R3706 101
V+3D
TC7WH34FU
IC3701
2Y GND 2A 3A 3Y 1Y 1A VCC
C3703 105
HST_TO_M
DAT_TO_M
R3707 103
GNDD

3.12 MAIN ASSY(4/4)



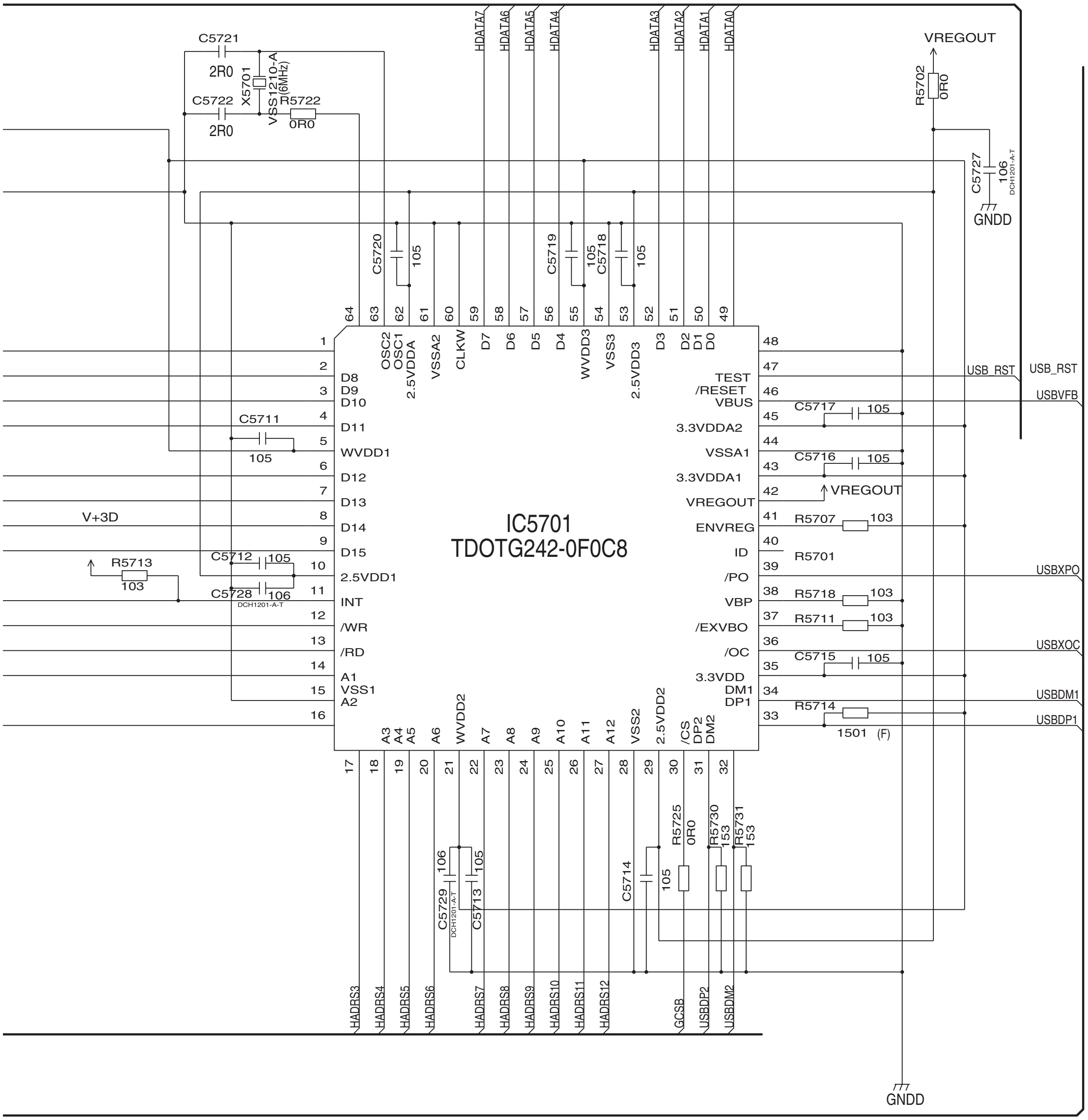
V+3D
V+3USB
L5701
DTL1106-A
TP5701
C5701
221/4
C5702
105
GNDD
R5509
330
USBDP1
R5508
330
USBDM1
R5507
100
USBVFB
C5506
102
CN5601
H CN101
S10B-PH-K-S
USBDP1 10
GND 9
USBDM1 8
GND 7
USBVFB 6
V+5USB 5
GND 4
USBDP2 3
GND 2
USBDM2 1
TP6
TP5
TP4
TP1
TP2
TP7
TP3
GNDD
C5512
104
V+5USB
R5605
R5608
330
USBDP2
R5607
330
USBDM2
R5606
0R0
HDATA8
HDATA9
HDATA10
HDATA11
HDATA12
HDATA13
HDATA14
HDATA15
USB_INT
HWS0
HDOE
HADRS1
HADRS2
V+3USB
R5612
472
R5611
472
R5609
0R0
USBXPO
R5610
0R0
USBXOC
IC5631
BD6517F
LM3526M-L
EV+5.8V
V+3D
CONT
SUB
VIN
CN
GND
NC
VO
IC5621
MM1565AF
C5621
105
C5622
102
C5623
225
C5624
101/16
GNDD

F 4/4

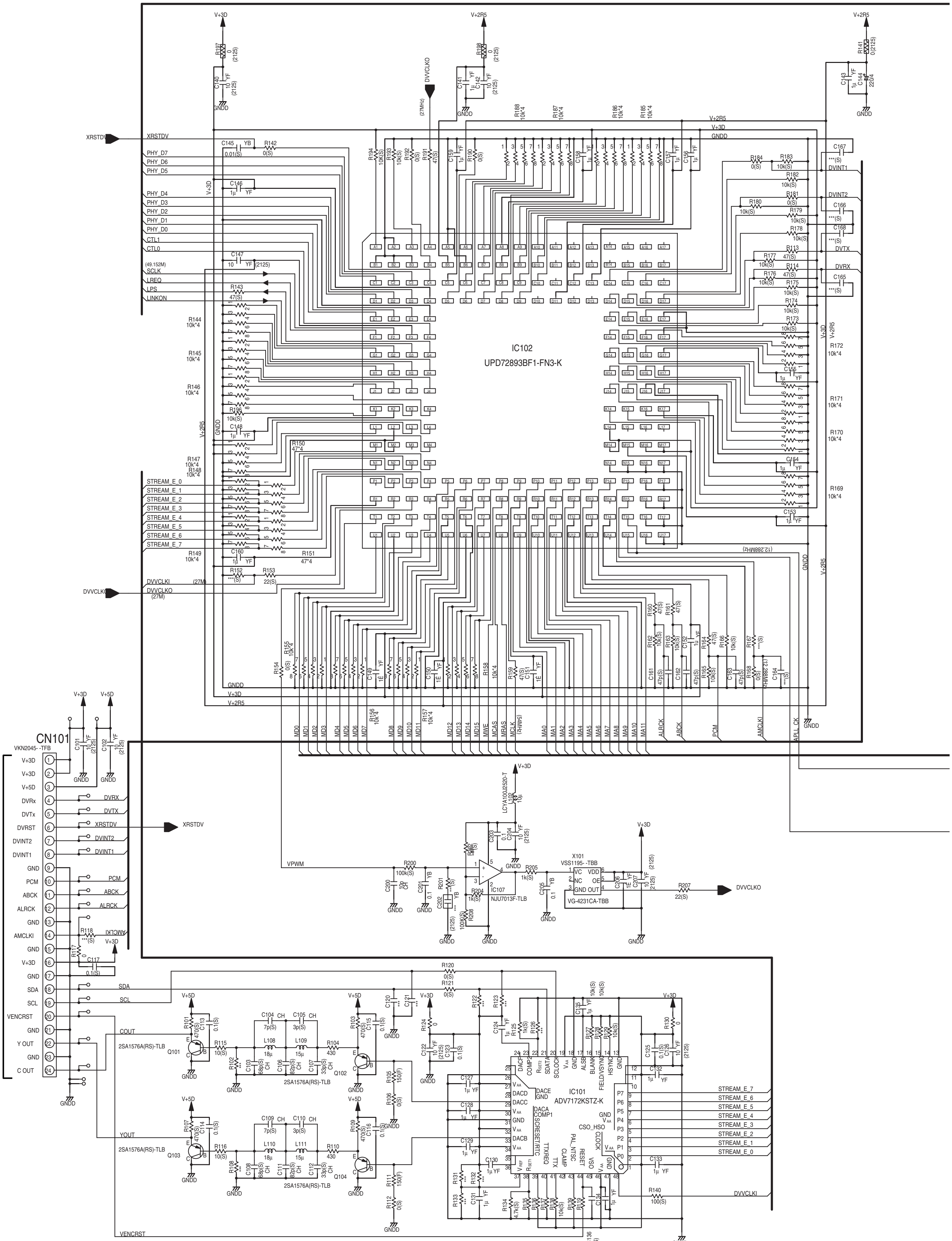
F 4/4 MAIN ASSY

(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)

This block is only for DVR-640H-AV.

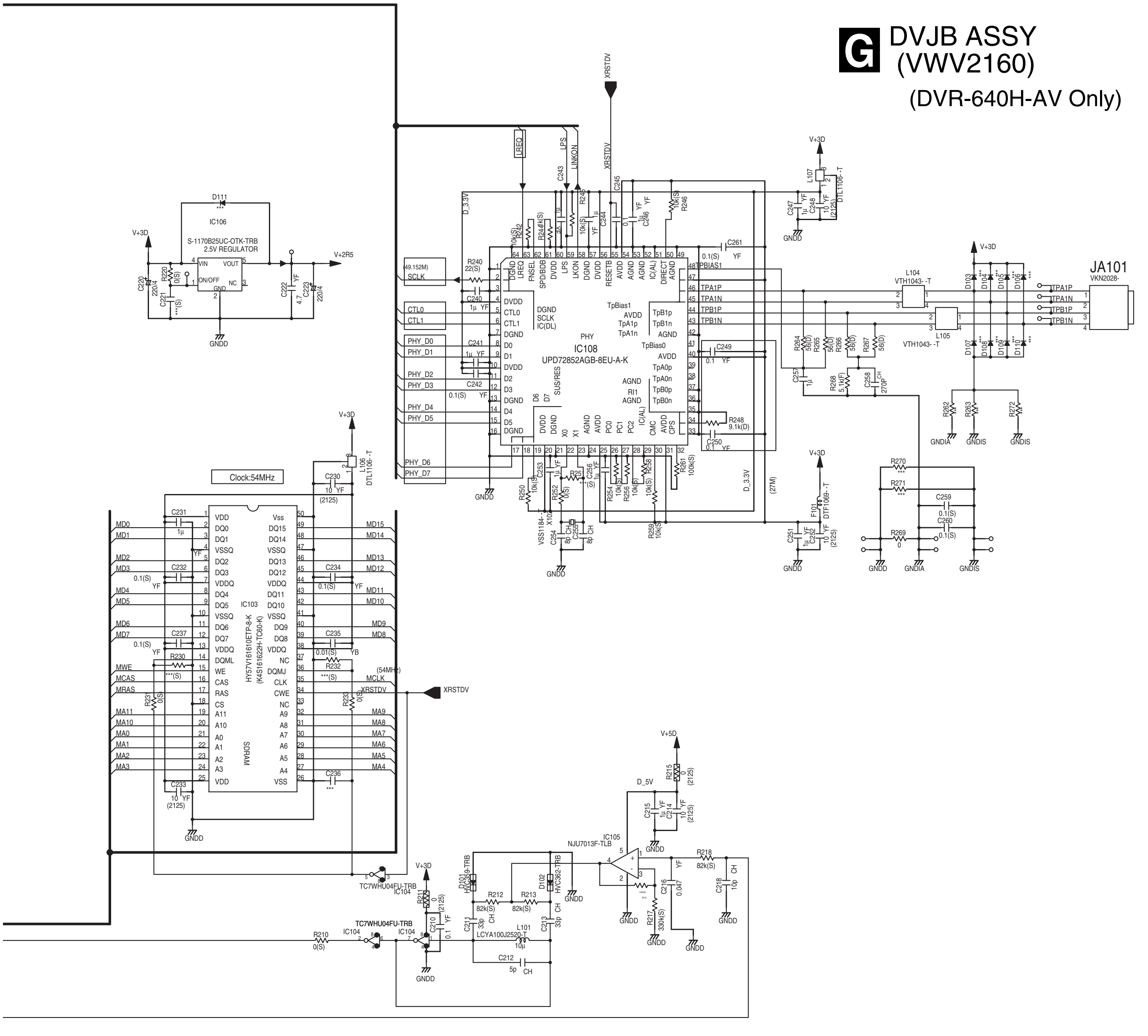

IC5701
TDOTG242-0F0C8
C5721 2R0
C5722 2R0
X5701 VSS1210-A (6MHz)
R5722 0R0
HDATA7 HDATA6 HDATA5 HDATA4 HDATA3 HDATA2 HDATA1 HDATA0
VREGOUT
R5702 0R0
C5727 106 DCH1201-A-T
GNDD
C5720 105
C5719 105
C5718 105
64 OSC2 63 OSC1 62 2.5VDDA 61 VSSA2 60 CLKW 59 D7 58 D6 57 D5 56 D4 55 WVDD3 54 VSS3 53 2.5VDD3 52 D3 51 D2 50 D1 49 D0
1 D8 2 D9 3 D10 4 D11 5 WVDD1 6 D12 7 D13 8 D14 9 D15 10 2.5VDD1 11 INT 12 /WR 13 /RD 14 A1 15 VSS1 16 A2
48 TEST 47 /RESET 46 VBUS 45 3.3VDDA2 44 VSSA1 43 3.3VDDA1 42 VREGOUT 41 ENVREG 40 ID 39 /PO 38 VBP 37 /EXVBO 36 /OC 35 3.3VDD 34 DM1 33 DP1
17 A3 18 A4 19 A5 20 A6 21 WVDD2 22 A7 23 A8 24 A9 25 A10 26 A11 27 A12 28 VSS2 29 2.5VDD2 30 /CS 31 DP2 32 DM2
C5711 105
V+3D
R5713 103
C5712 105
C5728 106 DCH1201-A-T
USB_RST
USB_RST
USBVFB
C5717 105
C5716 105
VREGOUT
R5707 103
R5701
USBXPO
R5718 103
R5711 103
USBXOC
C5715 105
USBDM1
R5714 1501 (F)
USBDP1
C5729 106 DCH1201-A-T
C5713 105
C5714 105
R5725 0R0
R5730 153
R5731 153
HADRS3 HADRS4 HADRS5 HADRS6 HADRS7 HADRS8 HADRS9 HADRS10 HADRS11 HADRS12
GCSB USBDP2 USBDM2
GNDD

3.13 DVJB ASSY (DVR-640H-AV Only)


A
B
C
D
E
F
IC102
UPD72893BF1-FN3-K
IC101
ADV7172KSTZ-K
IC107
NJU7013F-TLB
X101
VSS1195- -TBB
VG-4231CA-TBB
CN101
VKN2045- -TFB
F 2/4 CN3802
Q101
Q102
Q103
Q104
2SA1576A(RS)-TLB
L102
LCYA100J2520-T
V+3D
V+5D
V+2R5
GNDD
XRSTDV
DVVCLKO
DVVCLKI
PHY_D7
PHY_D6
PHY_D5
PHY_D4
PHY_D3
PHY_D2
PHY_D1
PHY_D0
CTL1
CTL0
SCLK
LREQ
LPS
LINKON
STREAM_E_0
STREAM_E_1
STREAM_E_2
STREAM_E_3
STREAM_E_4
STREAM_E_5
STREAM_E_6
STREAM_E_7
DVINT1
DVINT2
DVTX
DVRX
VPWM
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
MWE
MCAS
MRAS
MCLK
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
ALRCK
ABCK
PCM
AMCLKI
APLL_CK
(27MHz)
(49.152M)
(27M)
(12.288MHz)
SDA
SCL
VENCRST
COUT
YOUT
C OUT
Y OUT
DVRx
DVTx
DVRST
DVINT2
DVINT1
GND
PCM
ABCK
ALRCK
AMCLKI

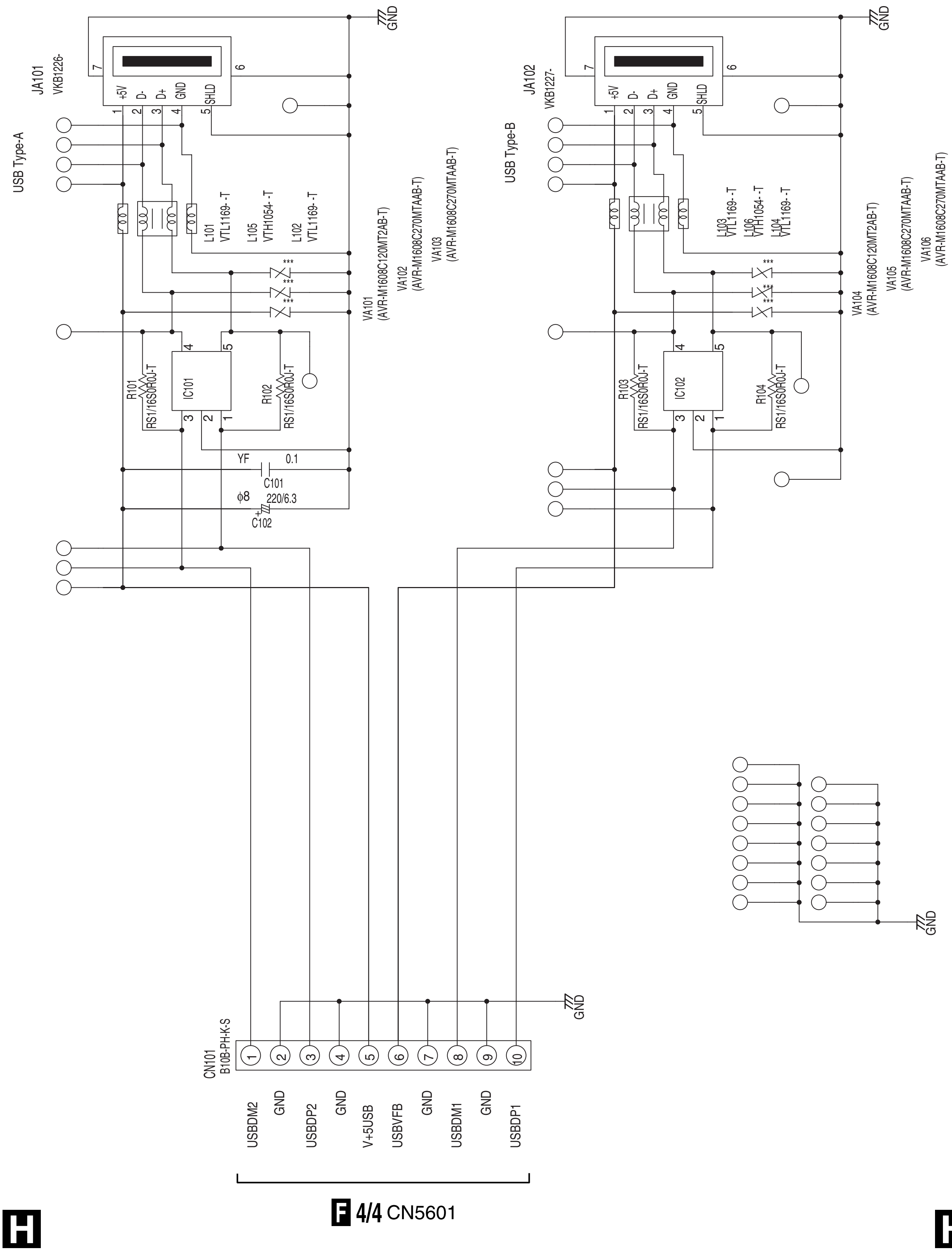
G DVJB ASSY (VWV2160)

(DVR-640H-AV Only)


IC106
S-1170B25UC-OTK-TRB
2.5V REGULATOR
D111
V+3D
V+2R5
GNDD
IC108
UPD72852AGB-8EU-A-K
PHY
XRSTDV
LREQ
LPS
LINKON
SCLK
CTL0
CTL1
PHY_D0
PHY_D1
PHY_D2
PHY_D3
PHY_D4
PHY_D5
PHY_D6
PHY_D7
D_3.3V
TPBIAS1
TPA1P
TPA1N
TPB1P
TPB1N
L104
VTH1043- -T
L105
JA101
VKN2028-
L107
DTL1106- -T
GNDIA
GNDIS
Clock:54MHz
IC103
HY57V161610ETP-8-K
(K4S161622H-TC60-K)
SDRAM
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
MWE
MCAS
MRAS
MCLK
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
L106
DTL1106- -T
IC105
NJU7013F-TLB
V+5D
D_5V
IC104
TC7WHU04FU-TRB
D101
D102
HVC362-TRB
L101
LCYA100J2520-T
F101
DTF1069- -T
X101
VSS1184-

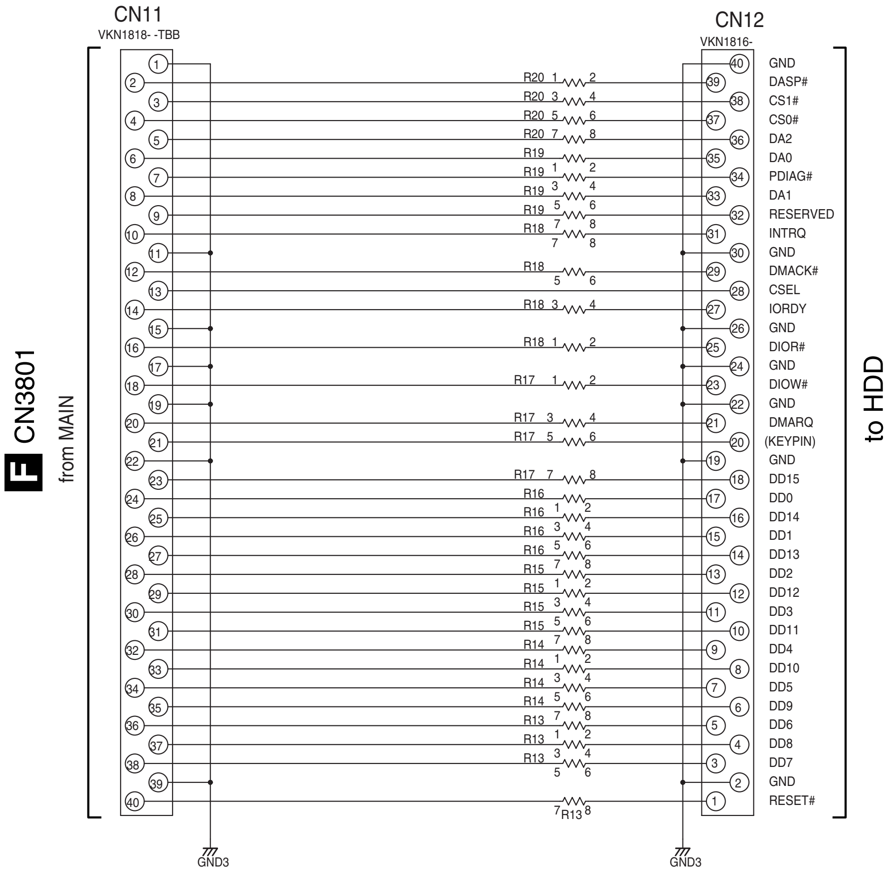
3.14 USBB ASSY (DVR-640H-AV Only)

H USBB ASSY
(VWV2161)


GND
JA101
VKB1226-
USB Type-A
+5V
D-
D+
GND
SHLD
1 2 3 4 5 6 7
L101 VTL1169- -T
L105 VTH1054- -T
L102 VTL1169- -T
VA101 (AVR-M1608C120MT2AB-T)
VA102 (AVR-M1608C270MTAAB-T)
VA103 (AVR-M1608C270MTAAB-T)
***
R101 RS1/16S0R0J-T
IC101
R102 RS1/16S0R0J-T
YF 0.1
C101
ϕ8 220/6.3
C102
JA102
VKB1227-
USB Type-B
L103 VTL1169- -T
L106 VTH1054- -T
L104 VTL1169- -T
VA104 (AVR-M1608C120MT2AB-T)
VA105 (AVR-M1608C270MTAAB-T)
VA106 (AVR-M1608C270MTAAB-T)
R103 RS1/16S0R0J-T
IC102
R104 RS1/16S0R0J-T
CN101
B10B-PH-K-S
1 2 3 4 5 6 7 8 9 10
USBDM2
GND
USBDP2
GND
V+5USB
USBVFB
GND
USBDM1
GND
USBDP1
F 4/4 CN5601

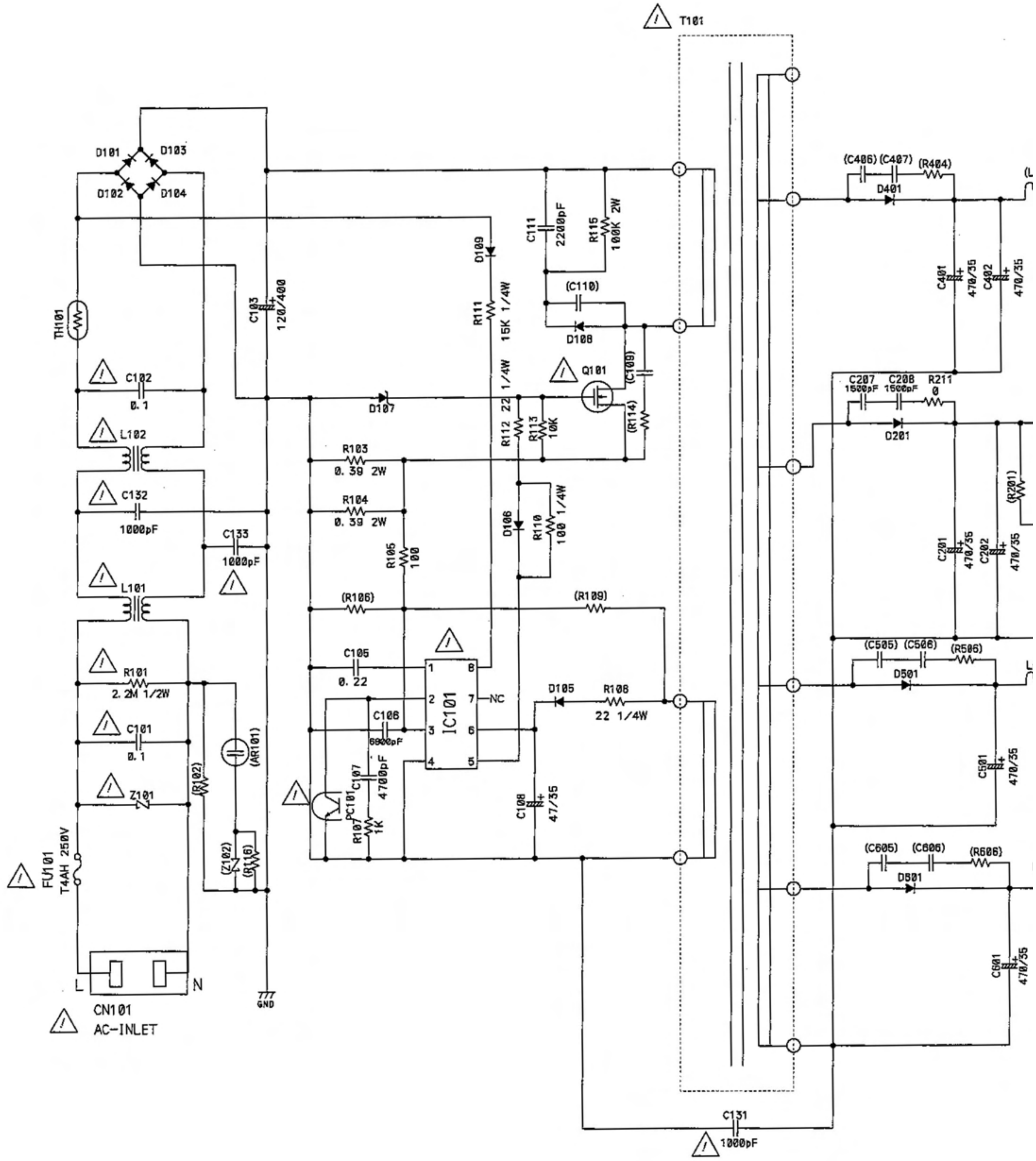
3.15 ATAB ASSY

I ATAB ASSY (VXX3140)

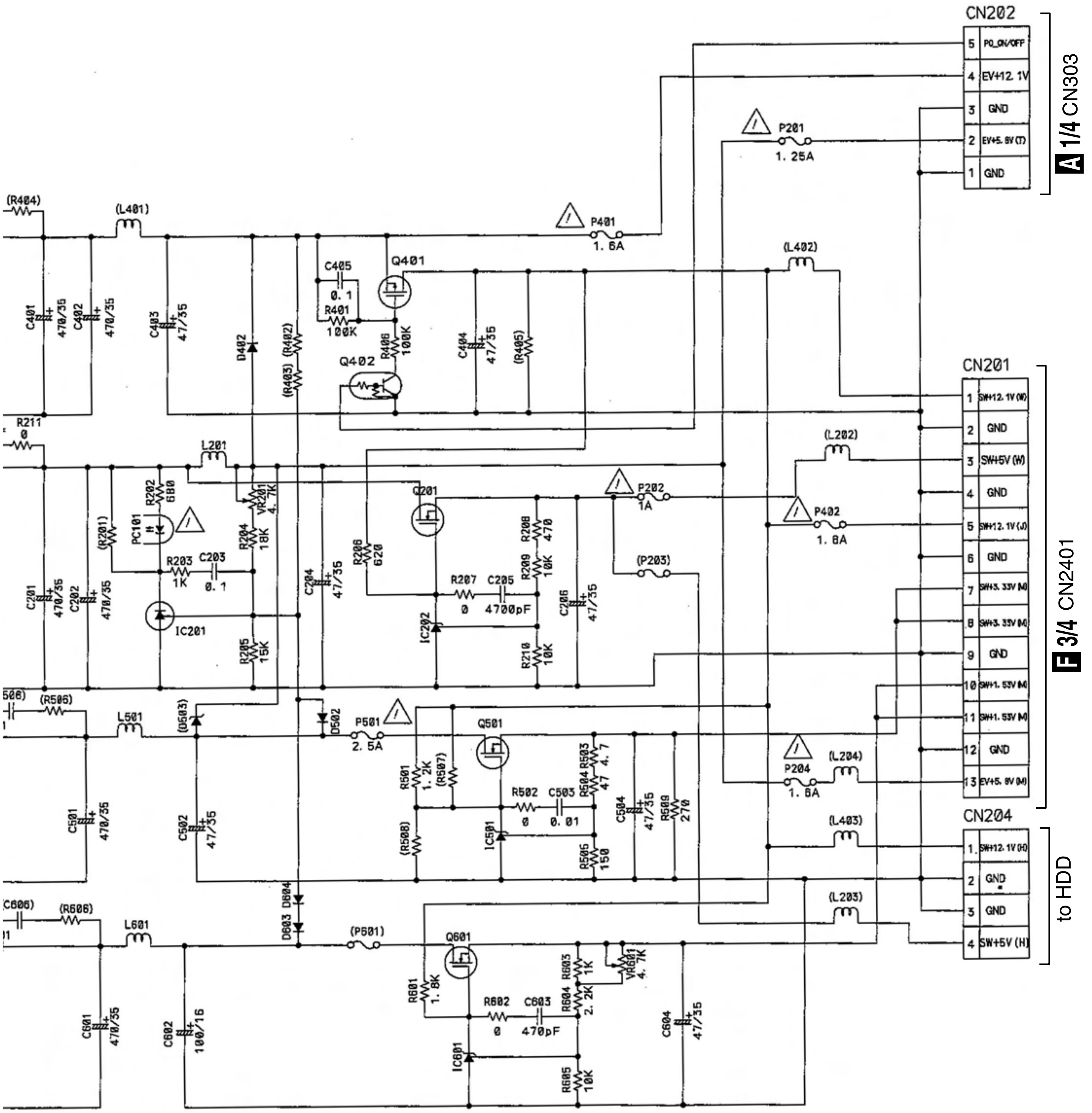

CN11
VKN1818- -TBB
CN12
VKN1816-
F CN3801
from MAIN
to HDD
GND
DASP#
CS1#
CS0#
DA2
DA0
PDIAG#
DA1
RESERVED
INTRQ
GND
DMACK#
CSEL
IORDY
GND
DIOR#
GND
DIOW#
GND
DMARQ
(KEYPIN)
GND
DD15
DD0
DD14
DD1
DD13
DD2
DD12
DD3
DD11
DD4
DD10
DD5
DD9
DD6
DD8
DD7
GND
RESET#
R20
R19
R18
R17
R16
R15
R14
R13
GND3
GND3

3.16 POWER SUPPLY UNIT

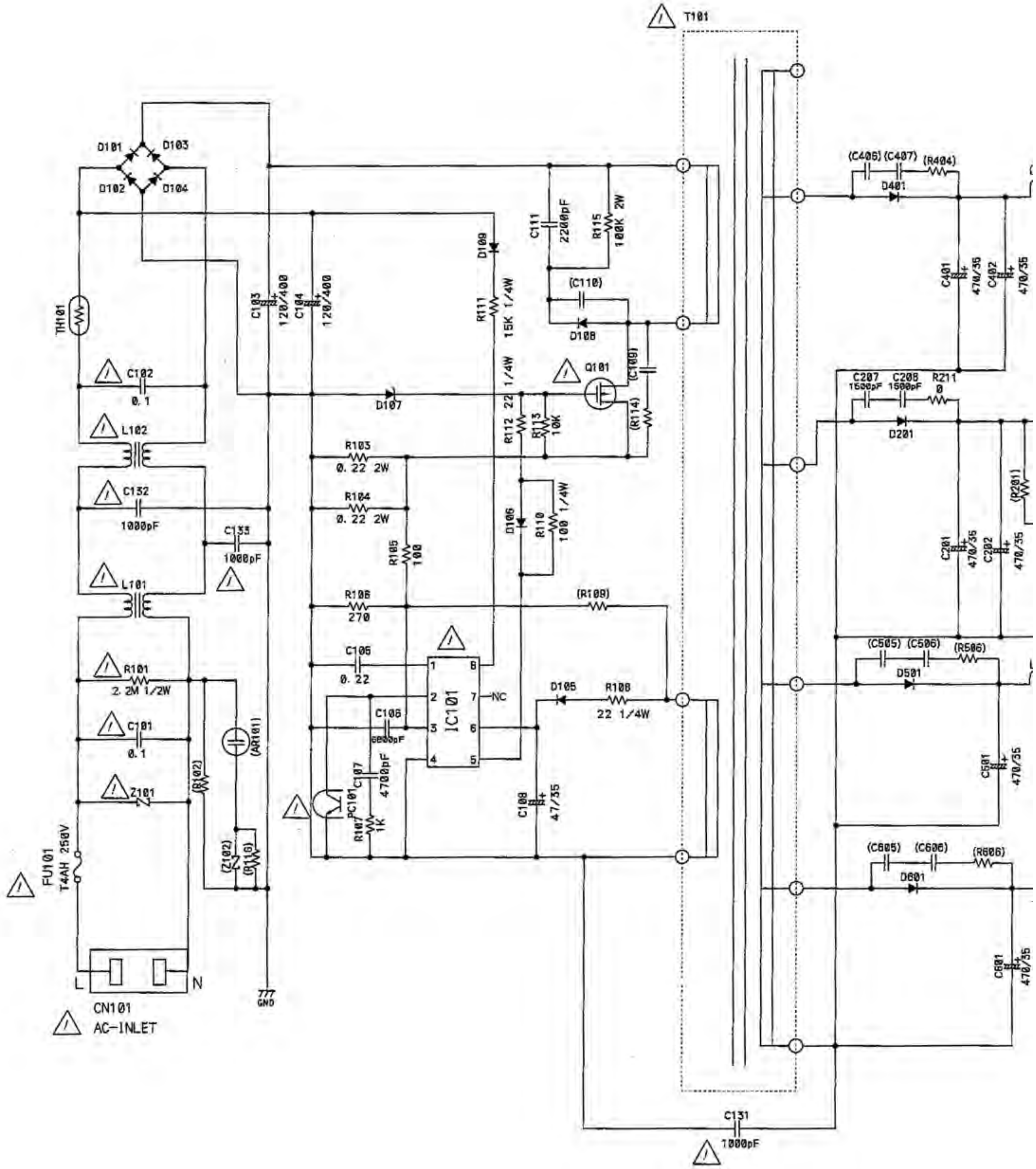
J POWER SUPPLY UNIT (VWR1399)


T101
D101
D103
D102
D104
TH101
C102
0.1
L102
C132
1000pF
C133
1000pF
L101
R101
2.2M 1/2W
C101
0.1
Z101
(R102)
(AR101)
(Z102)
(R116)
FU101
T4AH 250V
L
N
CN101
AC-INLET
GND
C103
120/400
D109
R111
15K 1/4W
C111
2200pF
R115
100K 2W
(C110)
D108
Q101
(C109)
(R114)
D107
R112 22 1/4W
R113
10K
R103
0.39 2W
R104
0.39 2W
R105
100
D106
R110
100 1/4W
(R106)
(R109)
C105
0.22
IC101
NC
C106
6800pF
C107
4700pF
PC101
R107
1K
D105
R108
22 1/4W
C108
47/35
C131
1000pF
(C406)
(C407)
(R404)
D401
C401
470/35
C402
470/35
C207
1500pF
C208
1500pF
R211
0
D201
(R201)
C201
470/35
C202
470/35
(C505)
(C506)
(R506)
D501
C501
470/35
(C605)
(C606)
(R606)
D601
C601
470/35

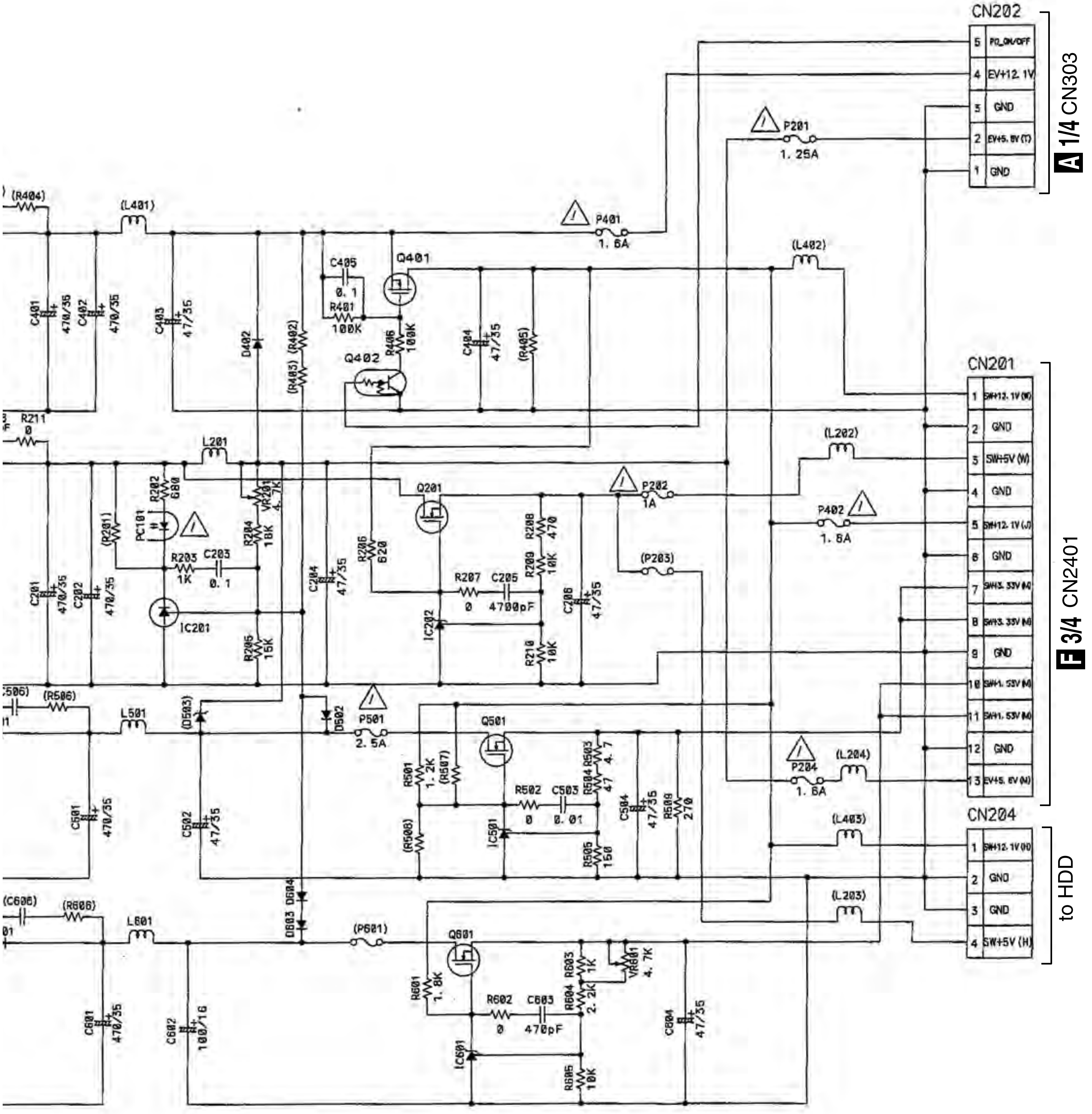
Unit	Resistor	Ω/W (under 1/4W for no direction W
	Capacitor	μF/V (under 50V for no direction V


CN202
5 PO_ON/OFF
4 EV+12.1V
3 GND
2 EV+5.6V (T)
1 GND
A 1/4 CN303
P201
1.25A
(R404)
(L401)
P401
1.6A
C405
0.1
Q401
R401
100K
R406
100K
C401
470/35
C402
470/35
C403
47/35
D402
(R402)
(R403)
Q402
C404
47/35
(R405)
(L402)
CN201
1 SW+12.1V (W)
2 GND
3 SW+5V (W)
4 GND
5 SW+12.1V (J)
6 GND
7 SW+3.33V (M)
8 SW+3.33V (M)
9 GND
10 SW+1.53V (M)
11 SW+1.53V (M)
12 GND
13 EV+5.6V (M)
F 3/4 CN2401
R211
0
L201
R202
680
PC101
(R201)
R203
1K
C203
0.1
VR201
4.7K
R204
18K
IC201
R205
15K
C201
470/35
C202
470/35
C204
47/35
R206
620
Q201
R207
0
C205
4700pF
R208
470
R209
10K
IC202
R210
10K
C206
47/35
P202
1A
(P203)
(L202)
P402
1.6A
(506)
(R506)
L501
(D503)
D502
P501
2.5A
Q501
R501
1.2K
(R507)
(R508)
R502
0
C503
0.01
R503
4.7
R504
47
IC501
R506
150
C504
47/35
R509
270
C501
470/35
C502
47/35
P204
1.6A
(L204)
CN204
1 SW+12.1V (H)
2 GND
3 GND
4 SW+5V (H)
to HDD
(L403)
(L203)
(C606)
(R606)
L601
D603
D604
(P601)
Q601
R601
1.8K
R602
0
C603
470pF
R603
1K
R604
2.2K
VR601
4.7K
IC601
R605
10K
C601
470/35
C602
100/16
C604
47/35

J POWER SUPPLY UNIT (VWR1400)


T101
D101
D103
D102
D104
TH101
C102
0.1
L102
C132
1000pF
C133
1000pF
L101
R101
2.2M 1/2W
C101
0.1
Z101
(R102)
(AR101)
(Z102)
(R116)
FU101
T4AH 250V
L
N
CN101
AC-INLET
GND
C103
120/400
C104
120/400
D107
R103
0.22 2W
R104
0.22 2W
R105
100
R106
270
C105
0.22
C106
6800pF
C107
4700pF
PC101
R107
1K
IC101
1
2
3
4
5
6
7
8
NC
D109
R111
15K 1/4W
R112 22 1/4W
R113
10K
Q101
(R114)
(C109)
C111
2200pF
R115
100K 2W
(C110)
D108
D106
R110
100 1/4W
(R109)
D105
R108
22 1/4W
C108
47/35
C131
1000pF
(C406)
(C407)
(R404)
D401
C401
470/35
C402
470/35
C207
1500pF
C208
1500pF
R211
0
D201
(R201)
C201
470/35
C202
470/35
(C505)
(C506)
(R506)
D501
C501
470/35
(C605)
(C606)
(R606)
D601
C601
470/35

Unit	Resistor	Ω/W (under 1/4W for no direction W
	Capacitor	µF/V (under 50V for no direction V

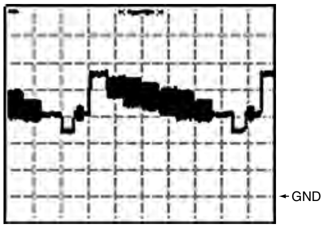

CN202
5 PD_ON/OFF
4 EV+12.1V
3 GND
2 EV+5.6V (T)
1 GND
A 1/4 CN303
P201
1.25A
(R404)
(L401)
P401
1.6A
C405
0.1
Q401
R401
100K
C401
470/35
C402
470/35
C403
47/35
D402
(R402)
(R403)
Q402
R406
100K
C404
47/35
(R405)
(L402)
CN201
1 SW+12.1V (W)
2 GND
3 SW+5V (W)
4 GND
5 SW+12.1V (J)
6 GND
7 SW+3.33V (W)
8 SW+3.33V (W)
9 GND
10 SW+1.53V (W)
11 SW+1.53V (W)
12 GND
13 EV+5.6V (W)
F 3/4 CN2401
R211
0
L201
R202
680
PC101
(R201)
VR201
4.7K
R204
18K
R203
1K
C203
0.1
IC201
R205
15K
C201
470/35
C202
470/35
C204
47/35
Q201
R206
620
R208
470
R209
10K
R207
0
C205
4700pF
IC202
R210
10K
C206
47/35
P202
1A
(P203)
(L202)
P402
1.6A
(C506)
(R506)
L501
(D503)
D502
P501
2.5A
Q501
R501
1.2K
(R507)
R503
4.7
R504
47
R502
0
C503
0.01
IC501
(R508)
R505
150
C504
47/35
R509
270
C501
470/35
C502
47/35
P204
1.6A
(L204)
(L403)
CN204
1 SW+12.1V (H)
2 GND
3 GND
4 SW+5V (H)
to HDD
(L203)
(C606)
(R606)
L601
D604
D603
(P601)
Q601
R601
1.8K
R603
1K
VR601
4.7K
R602
0
C603
470pF
R604
2.2K
IC601
R605
10K
C601
470/35
C602
100/16
C604
47/35

3.17 WAVE FORMS

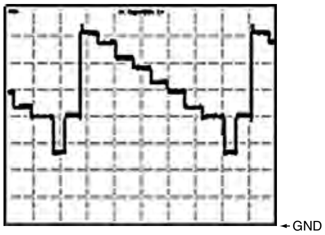
Note : The encircled numbers denote measuring point in the schematic diagram.

A TUJB ASSY

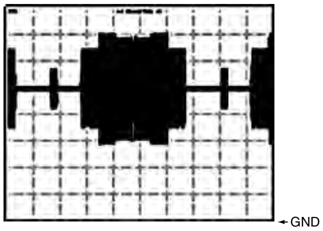
① **IC100-pin18 (TU-VIN)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



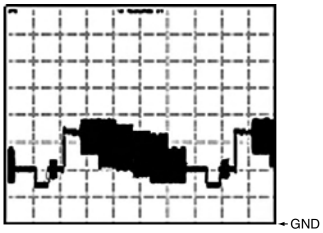
② **C2036+side (Y1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



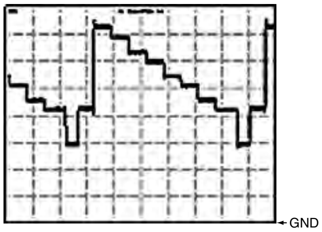
③ **IC100-pin34 (C1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



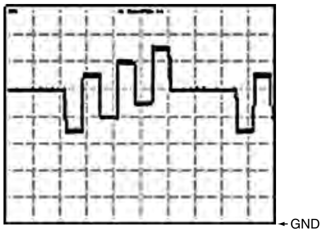
④ **C2037+side (V1OUT)**
(Function : DVD play)
V:1V/div. H:10µsec/div.



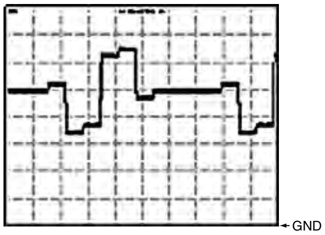
⑤ **C2035+side (YOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



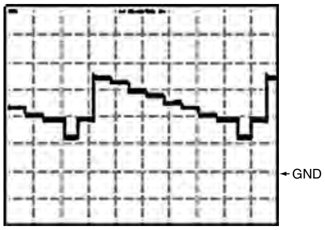
⑥ **C2034+side (CbOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



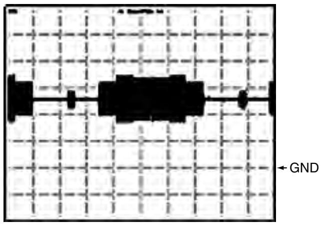
⑦ **C2033+side (CrOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



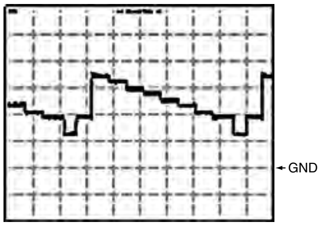
⑧ **CN4002-pin19 (Y_OUT MtoT)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



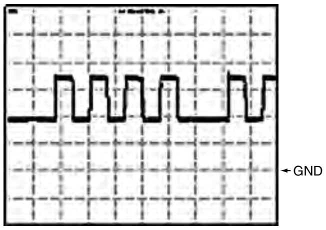
⑨ **CN4002-pin17 (C_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



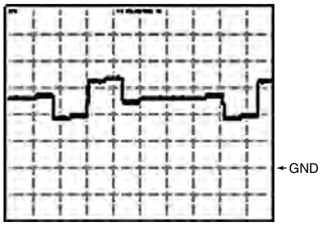
⑩ **CN4002-pin21 (Yp_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



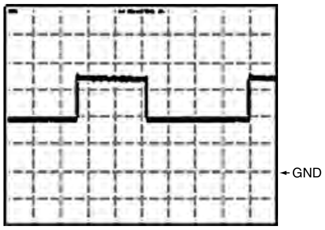
⑪ **CN4002-pin23 (Cb_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



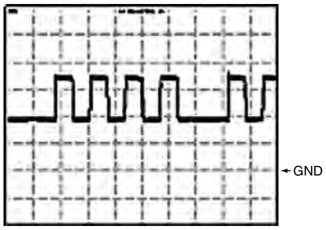
⑫ **CN4002-pin25 (Cr_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



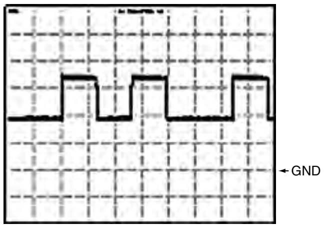
⑬ **CN4002-pin21 (Y/G_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



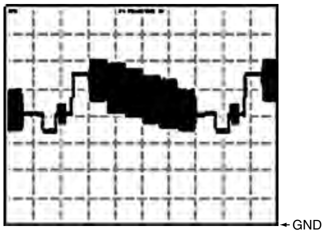
⑭ **CN4002-pin23 (Cb/B_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



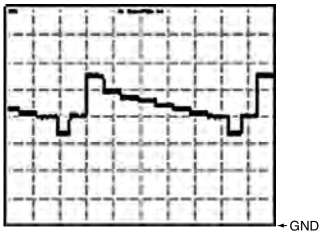
⑮ **CN4002-pin25 (Cr/R_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



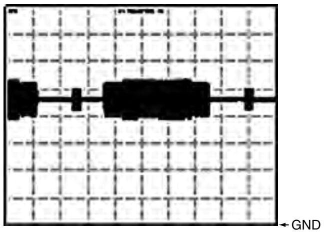
⑯ **IC100-pin14 (2VIN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



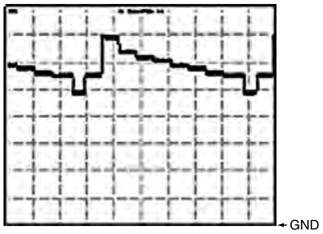
⑰ **IC100-pin7 (Y2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



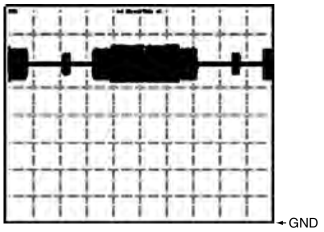
⑱ **IC100-pin9 (C2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



⑲ **CN4002-pin28 (Y_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



⑳ **CN4002-pin30 (C_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



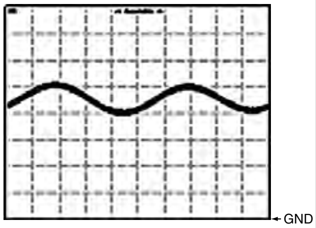
A TUJB ASSY

Measurement Condition :

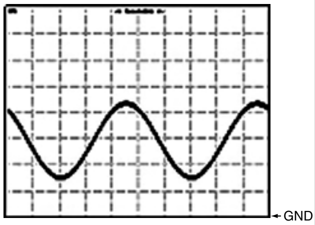
B SCRB ASSY

Measurement Condition :

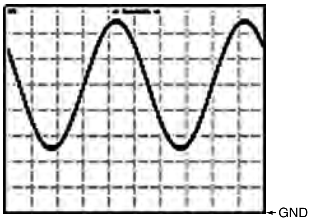
㉑ **IC100-pin87 (TU-LIN)**
(Function : Tuner 9ch)
V:500mV/div. H:10μsec/div.



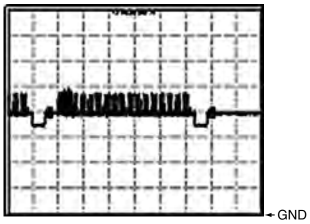
㉒ **C2038+side (L_OUT)**
Function : DVD play)
V:500mV/div. H:10μsec/div.



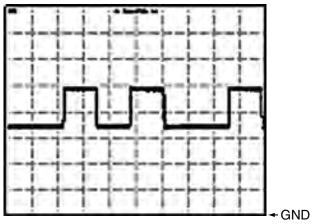
㉓ **CN4002-pin32 (L_IN)**
(Function : LINE2 IN)
V:500mV/div. H:10μsec/div.



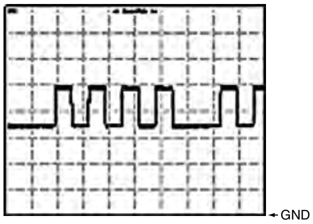
㉔ **IC101-pin81 (TEXTV)**
(Function : RF IN)
V:1V/div. H:10μsec/div.



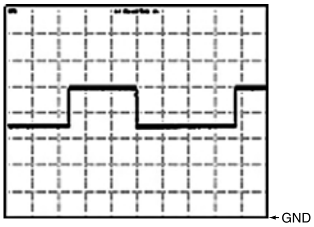
① **JA801-pin15 (R/C IN)**
(Function : LINE1 IN)
V:500mV/div. H:10μsec/div.



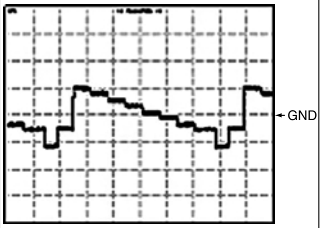
② **JA801-pin7 (BIN)**
(Function : LINE1 IN)
V:500mV/div. H:10μsec/div.



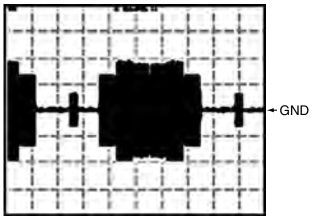
③ **JA801-pin11 (G IN)**
(Function : LINE1 IN)
V:500mV/div. H:10μsec/div.



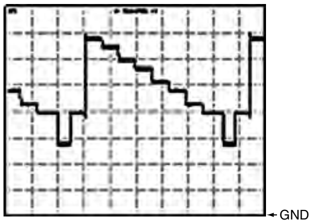
④ **JA801-pin20 (AV2_V/Y IN))**
(Function : LINE1 IN)
V:1V/div. H:10μsec/div.



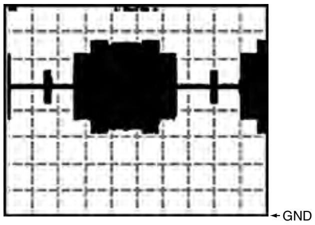
⑤ **JA801-pin15 (R/C IN)**
(Function : LINE1 IN)
V:500mV/div. H:10μsec/div.



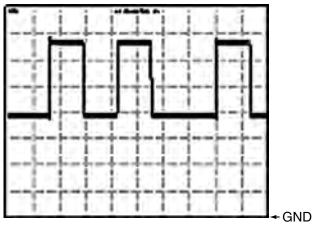
⑥ **CN1-pin29 (AV1_V/Y_OUT)**
(Function : DVD play)
V:500mV/div. H:10μsec/div.



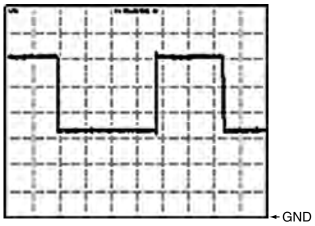
⑦ **CN1-pin26 (AV1_R/C_OUT)**
(Function : DVD play)
V:500mV/div. H:10μsec/div.



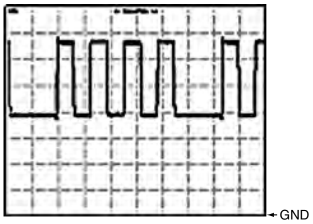
⑧ **CN1-pin26 (AV1_R/C_OUT)**
(Function : DVD play)
V:1V/div. H:10μsec/div.



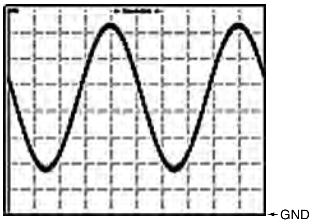
⑨ **CN1-pin24 (AV1_G_OUT)**
(Function : DVD play)
V:500mV/div. H:10μsec/div.



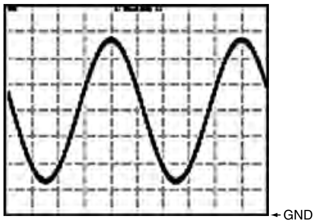
⑩ **CN1-pin12 (AV1_B_OUT)**
(Function : DVD play)
V:500mV/div. H:10μsec/div.



⑪ **CN1-pin4 (AV1_L_OUT)**
(Function : DVD play)
V:500mV/div. H:10μsec/div.



⑫ **JA801-pin6 (AV2_L_IN)**
(Function : LINE1 IN)
V:1V/div. H:10μsec/div.

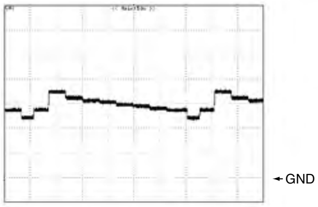


F MAIN ASSY

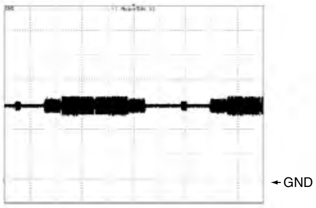
Measurement Condition :

No.1 - 8 : EBU Color Bar (100 / 0 / 75 / 0)

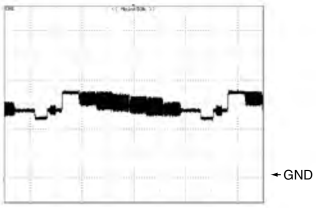
① **CN2301 Pin8 (Y_IN)**
V: 1V/div. H: 10us/div.



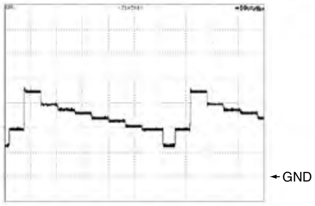
② **CN2301 Pin6 (C_IN)**
V: 1V/div. H: 10us/div.



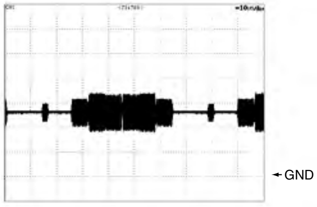
③ **CN2301 Pin_8 (CVBS_IN)**
V: 1V/div. H: 10us/div.



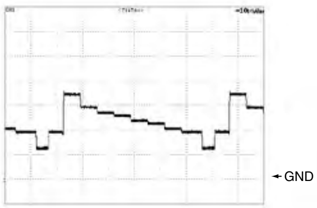
④ **CN2301 Pin17 (Y_OUT)**
V: 0.5V/div. H: 10us/div.



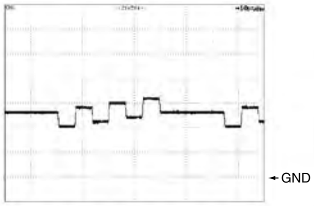
⑤ **CN2301 Pin19 (C_OUT)**
V: 0.5V/div. H: 10us/div.



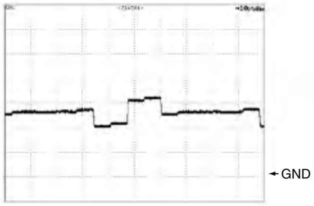
⑥ **CN2301 Pin15 (YP_OUT)**
V: 0.5V/div. H: 10us/div.



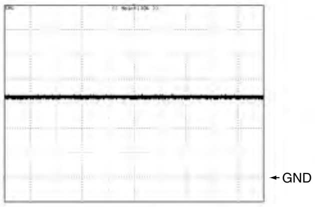
⑦ **CN2301 Pin13 (CB_OUT)**
V: 0.5V/div. H: 10us/div.



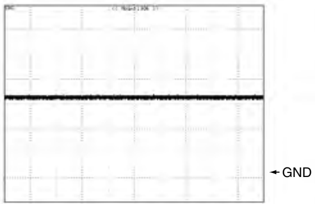
⑧ **CN2301 Pin11 (CR_OUT)**
V: 0.5V/div. H: 10us/div.



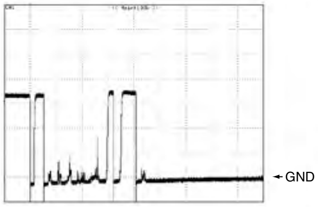
⑨ **IC501 Pin22 (XDMUTE1)**
V: 1V/div. H: 20us/div.



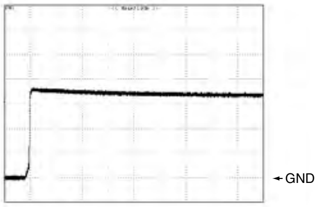
⑩ **IC501 Pin23 (XDMUTE2)**
V: 1V/div. H: 20us/div.



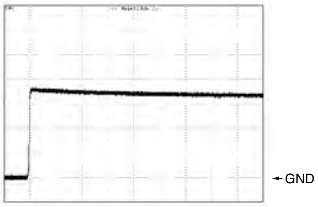
⑪ **CN601 Pin3 (CLOSE)**
open → close
V: 1V/div. H: 20us/div.



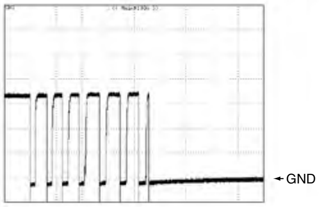
⑫ **CN601 Pin3 (CLOSE)**
close → open
V: 1V/div. H: 20us/div.



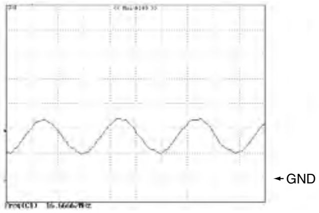
⑬ **CN601 Pin5 (CLOSE)**
open → close
V: 1V/div. H: 20us/div.



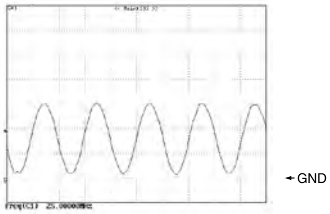
⑭ **CN601 Pin5 (CLOSE)**
close → open
V: 1V/div. H: 20us/div.



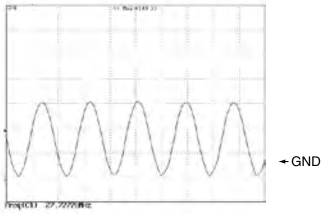
⑮ **X201 (16.93MHz)**
V: 1V/div. H: 20ns/div.



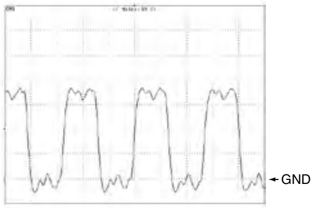
⑯ **X1001 (24.576MHz)**
V: 1V/div. H: 20ns/div.



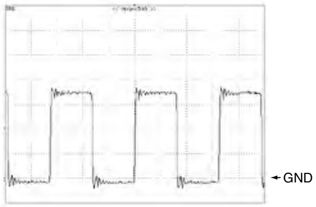
⑰ **X1002 (27MHz)**
V: 1V/div. H: 20ns/div.



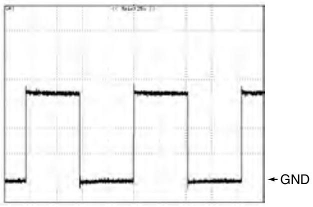
⑱ **IC3101 Pin11 (ADCCLKO)**
V: 1V/div. H: 20ns/div.



⑲ **IC3101 Pin12 (AD_BCK)**
V: 1V/div. H: 100ns/div.

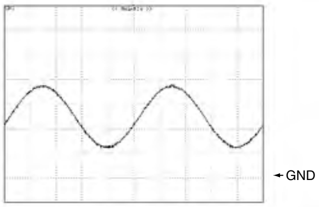


⑳ **IC3101 Pin10 (AD_LRCK)**
V: 1V/div. H: 5us/div.

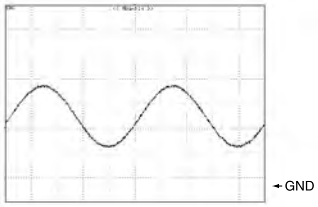


F MAIN ASSY

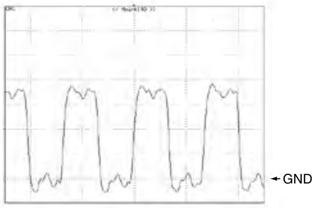
㉑ **CN2301 Pin4 (LCH IN)**
V: 1V/div. H: 200us/div.



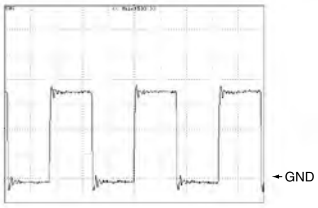
㉒ **CN2301 Pin2 (RCH IN)**
V: 1V/div. H: 200us/div.



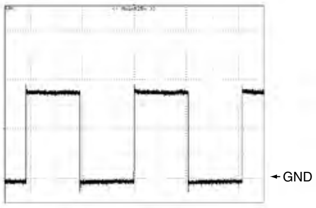
㉓ **IC3201 Pin16 (DACCLKO)**
V: 1V/div. H: 20ns/div.



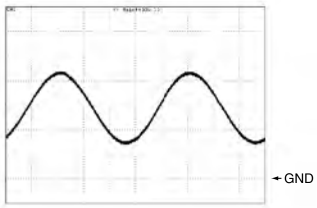
㉔ **IC3201 Pin1 (DACBCKO)**
V: 1V/div. H: 100ns/div.



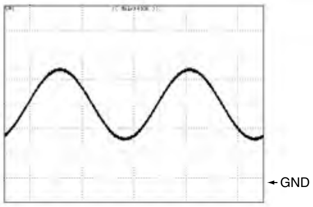
㉕ **IC3201 Pin3 (DACLRCKO)**
V: 0.5V/div. H: 5us/div.



㉖ **CN2301 Pin21 (LCH OUT)**
V: 2V/div. H: 200us/div.



㉗ **CN2301 Pin23 (RCH OUT)**
V: 2V/div. H: 200us/div.



A

B

C

D

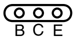
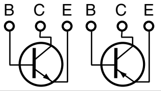
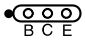
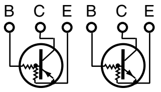
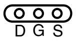
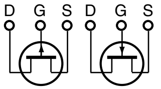
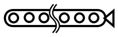
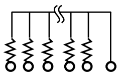
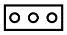
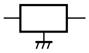
E

F

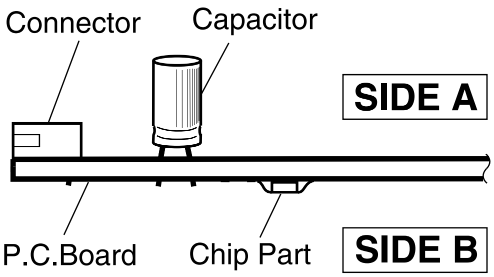
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

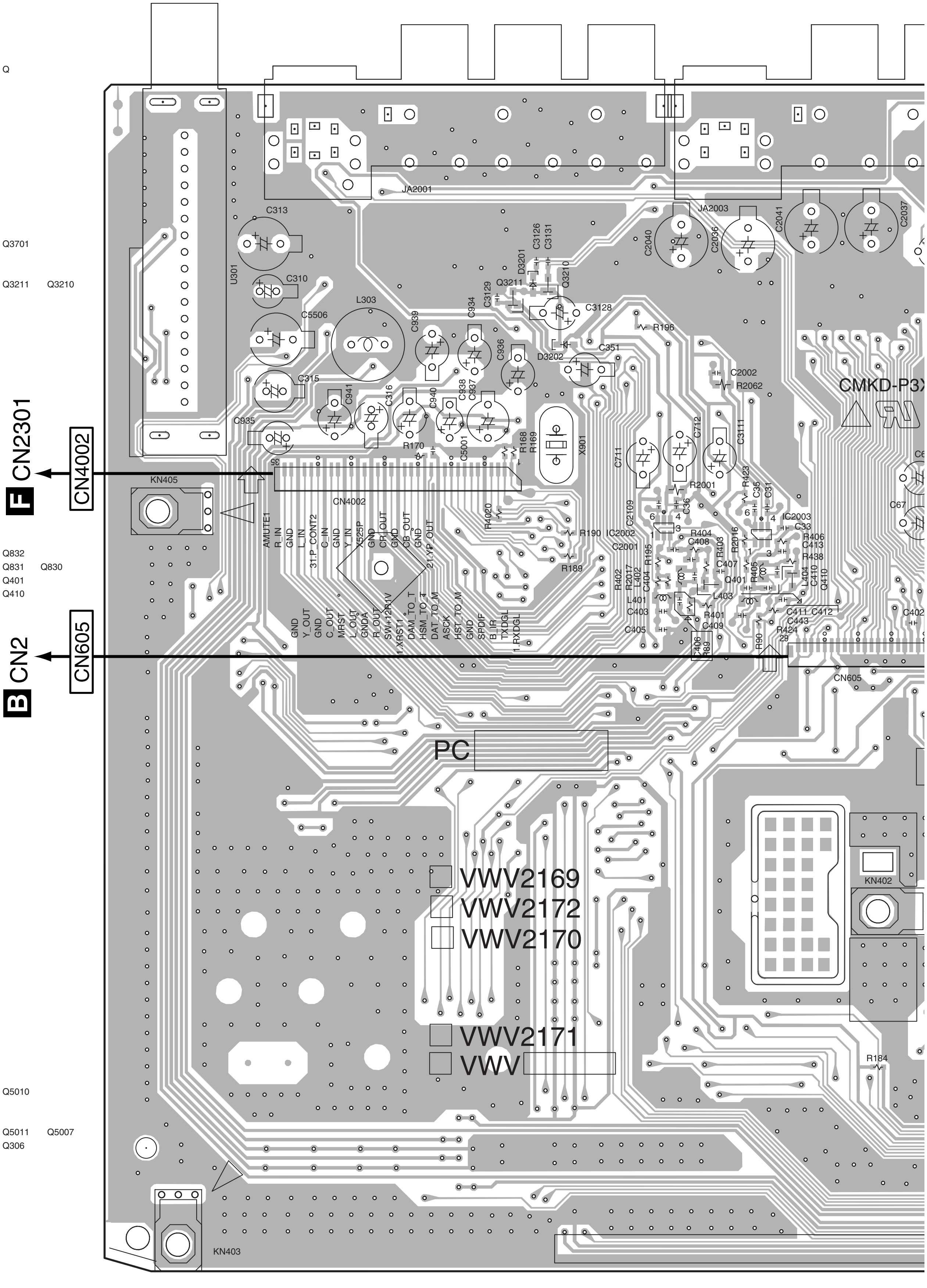

Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

4.1 TUJB ASSY

SIDE A

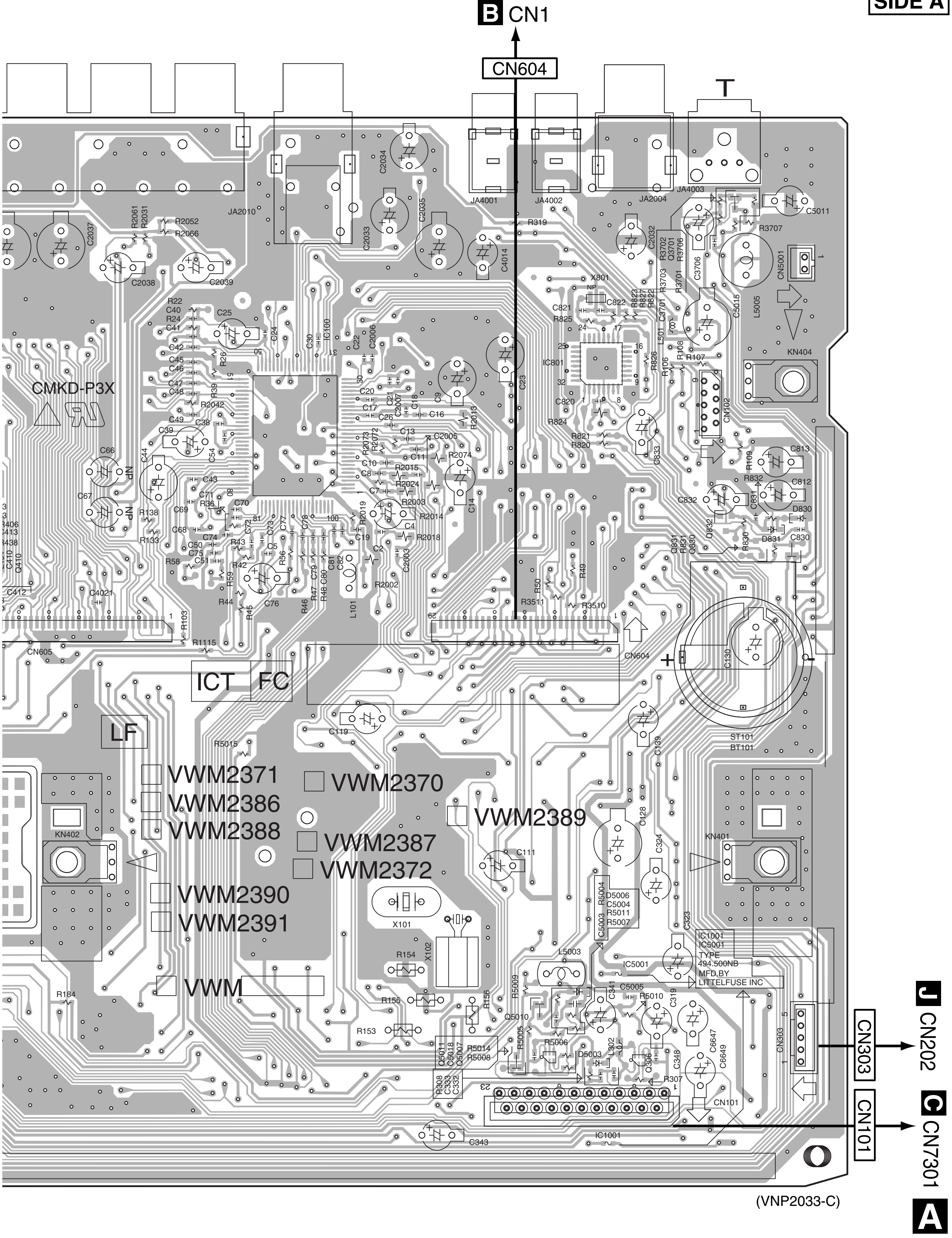
A TUJB ASSY

IC	Q
	Q3701
	Q3211 Q3210
IC100	
IC801	
IC2003	
IC2002	
	Q832
	Q831 Q830
	Q401
	Q410
IC5001	
	Q5010
	Q5011 Q5007
	Q306
IC1001	



F CN2301
CN4002
B CN2
CN605
JA2001
JA2003
C313
U301
C310
C5506
L303
C315
C935
C941
C316
C940
C939
C934
C936
C938
C937
C3129
Q3211
D3201
C3126
C3131
Q3210
C3128
D3202
C351
R196
C2040
C2036
C2041
C2037
C2002
R2062
CMKD-P3X
R170
C5001
R168
R169
X901
C711
C712
C3111
KN405
CN4002
35
AMUTE1
R_IN
GND
L_IN
31.P_CONT2
C_IN
GND
Y_IN
X525P
GND
CR_OUT
GND
CB_OUT
GND
21.YP_OUT
GND
Y_OUT
GND
C_OUT
MRST
L_OUT
GNDA
R_OUT
SW+12R1V
1.XRST1
DAM_TO_T
HSM_TO_M
DAT_TO_M
ASCK
HST_TO_M
GND
SPDIF
B_IR
TXDGL
1.RXDGL
R4020
R190
IC2002
C2001
R189
C2109
R195
R402
R2017
L402
C404
L401
C403
C405
R2001
C36
R404
C408
R403
C407
Q401
L403
R401
C409
R406
R2016
R423
C35
C31
IC2003
C33
R406
C413
R438
R405
L404
C410
Q410
C411
C412
C443
R424
C402
29
R90
C406
R89
CN605
C6
C67
PC
VWV2169
VWV2172
VWV2170
VWV2171
VWV
KN402
R184
KN403

SIDE A


B CN1
CN604
T
JA4001
JA4002
JA2004
JA4003
JA2010
C2034
C2035
C2033
C2032
C2037
C2038
C2039
C4014
C5011
R3707
R3702
Q3701
R3706
R3703
R3701
C3706
C5015
CN5001
L5005
KN404
R2061
R2031
R2052
R2066
R319
X801
NP
C822
C821
R825
R823
R827
R822
C3701
L501
R108
R107
R106
R826
IC801
CN102
C820
R824
R821
R820
C833
C813
R109
R832
C812
C832
C831
D830
Q832
Q831
R831
Q830
R830
D831
C830
CMKD-P3X
R22
C40
R24
C41
C25
C24
C30
IC100
C22
C2006
C42
C45
C46
C47
C48
R26
R39
R2042
C49
C39
C38
C54
C44
C66
NP
C67
NP
C43
C71
R36
C70
R138
R133
C69
C68
C74
C50
C75
C51
R58
R43
R42
R59
R44
R45
C76
C72
C73
C5
C77
C78
R56
R46
R47
C79
R48
C80
C81
C82
L101
R2002
C20
C17
C21
C2007
C18
C9
C16
C26
R2013
C13
C2005
R2073
R2072
C11
R2074
C10
R2015
C8
R2024
C7
R2003
R2019
R2014
C4
C14
C19
R2018
C2
C2003
C23
R49
R50
R3511
R3510
R406
C413
R438
C410
Q410
C412
C4021
R103
R1115
CN605
CN604
C130
ST101
BT101
ICT
FC
LF
C119
R5015
C139
VWM2371
VWM2386
VWM2388
VWM2370
VWM2389
VWM2387
VWM2372
VWM2390
VWM2391
VWM
KN402
KN401
C111
C128
C324
R5004
D5006
C5004
R5011
R5007
C5003
C323
X101
X102
R154
L5003
IC5001
IC1001
IC5001
TYPE
494.500NB
MFD.BY
LITTELFUSE INC
R184
R155
R156
R5009
C341
C5005
R5010
C319
Q5010
R153
Q5011
C5018
Q5007
R5014
R5008
R5005
R5006
D5003
L302
Q306
C348
C6647
C6649
R307
R308
C333
C332
CN101
CN303
C343
IC1001
J CN202
CN303
C CN7301
CN101
(VNP2033-C)

A

A

SIDE B

A TUJB ASSY

IC	Q
	Q3002
	Q5006 Q3004 Q3003
	Q4003 Q4002 Q3001 Q6001 Q5009
	Q2001
	Q310
	Q4 Q5008
	Q812 Q108
IC701	Q106
	Q107
	Q811
IC901	
	Q810
	Q2 Q409
	Q3011
	Q906
	Q3010
	Q105 Q101
IC101	
	Q904
IC4001	Q903
	Q103
	Q104
	Q303 Q4001
	Q307
	Q102
	Q313
	Q302
	Q301
	Q6008
	Q314
IC102	Q6009

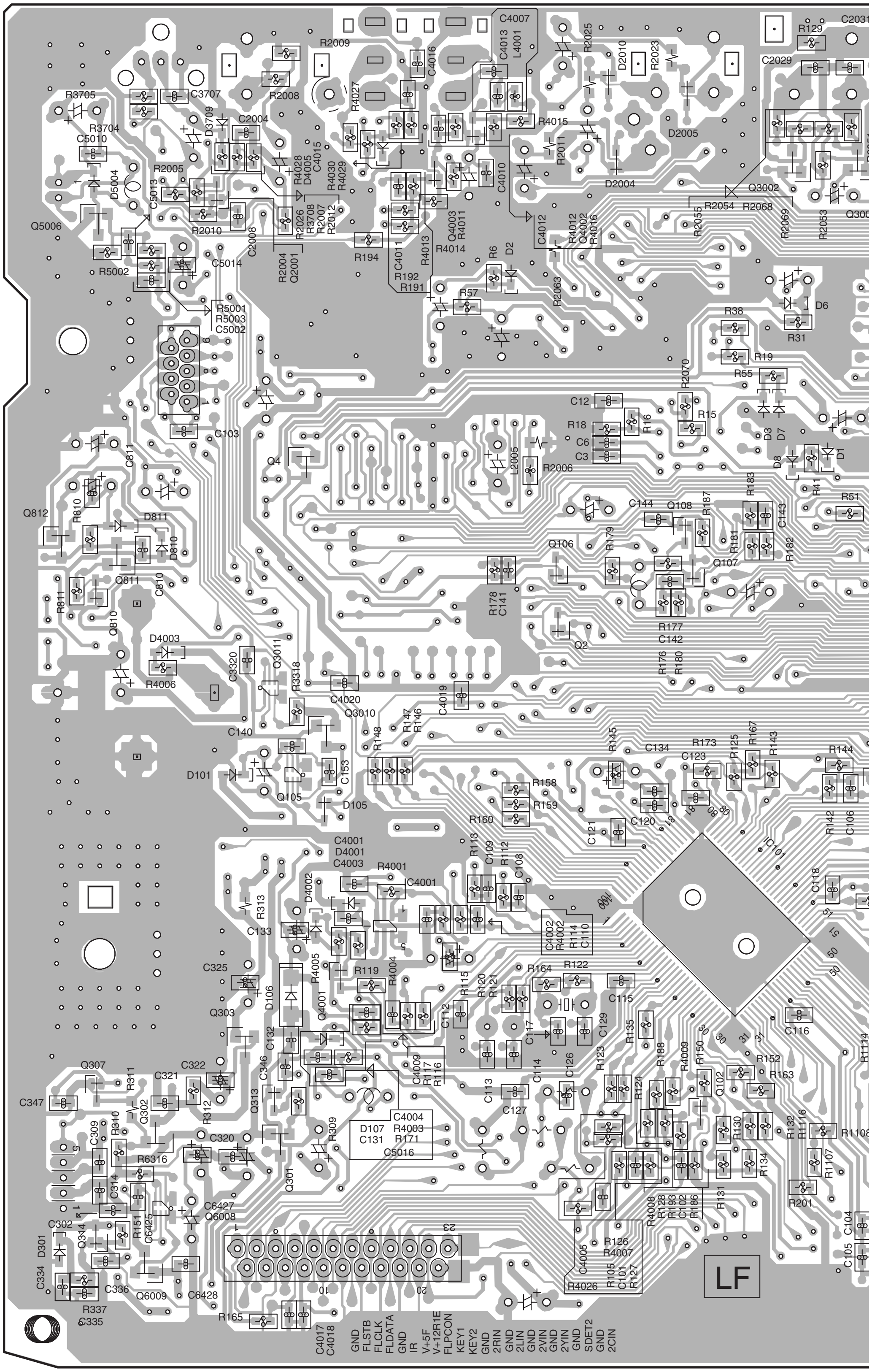
B

C

D

E

F



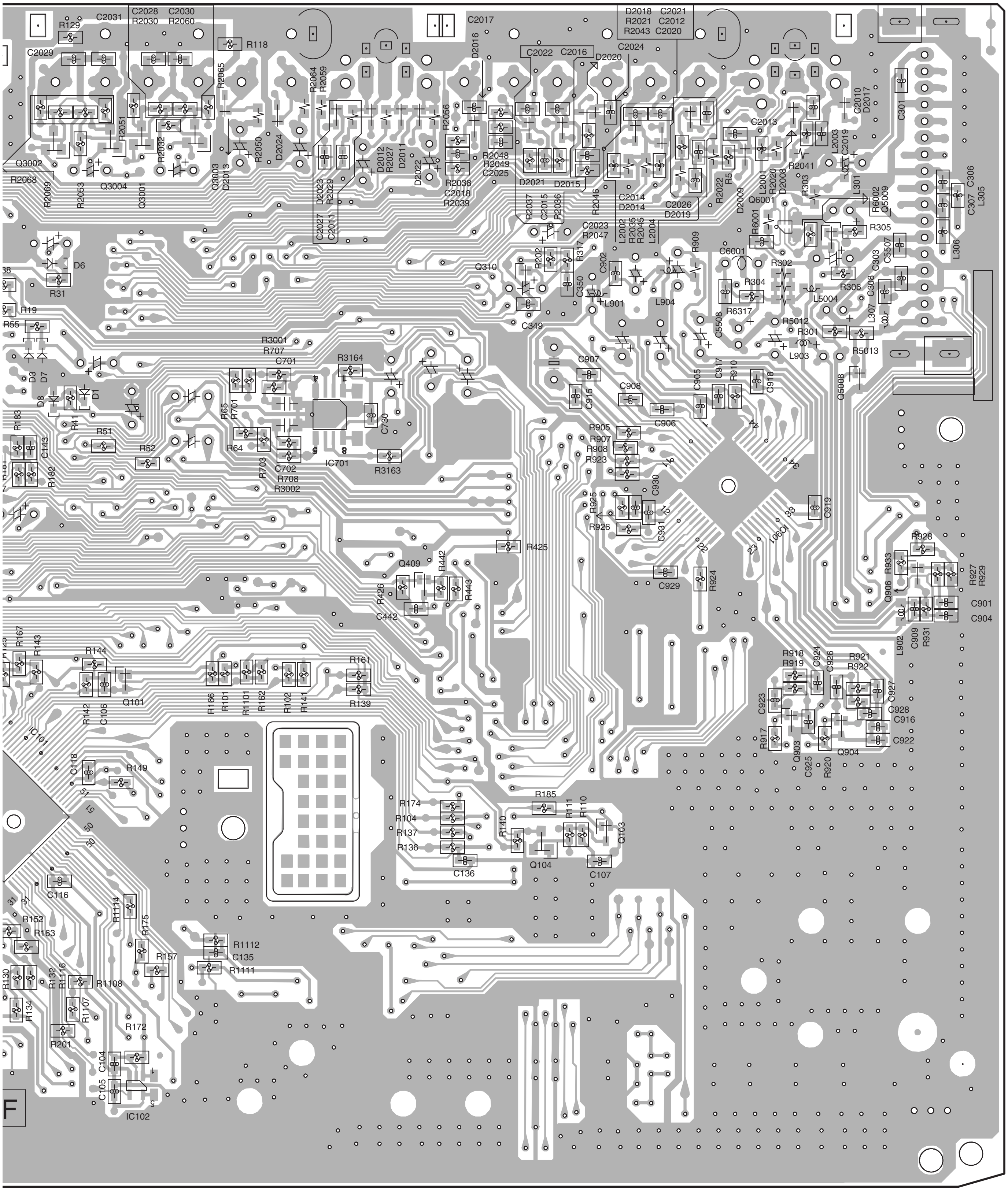
C4007
R2009
R2025
R129
C2031
C4013
L4001
C4016
D2010
R2023
C2029
R3705
C3707
R2008
R4027
R4015
R3704
C5010
D3709
C2004
D2005
R2005
D5004
C5013
R4028
D4005
C4015
R4030
R4029
C4010
R2011
D2004
Q3002
R2054
R2068
Q5006
R2010
C2008
R2026
R3708
R2007
R2012
Q4003
R4011
C4012
R4012
Q4002
R4016
R2055
R2069
R2053
R5002
C5014
R2004
Q2001
R194
C4011
R192
R191
R4013
R4014
R6
D2
R2063
R5001
R5003
C5002
R57
R38
D6
R31
R19
R55
R2070
C12
R18
R16
R15
C6
C3
D3
D7
D8
D1
C103
Q4
L2005
R2006
R41
R51
C811
C144
Q108
R183
C143
Q812
R810
D811
D810
Q106
R179
R187
R181
R162
Q811
C810
R178
C141
Q107
R177
C142
R811
Q810
D4003
C3320
Q3011
Q2
R176
R180
R4006
R3318
C4020
C4019
Q3010
R147
R146
C140
R148
R145
C134
R173
C123
R125
R167
R143
R144
D101
Q105
C153
D105
R158
R159
R160
C121
C120
IC101
R142
C106
C4001
D4001
C4003
R4001
C4001
R113
C109
R112
C108
R313
D4002
C133
C4002
R4002
R114
C110
C118
C325
R4005
R119
R4004
R115
R120
R121
R164
R122
C115
D106
Q303
C132
Q4001
C112
C117
C129
R135
C116
Q307
C322
C321
R311
C346
C4009
R117
R116
R123
R188
R4009
R150
R152
R163
R1114
C347
Q302
R312
Q313
C113
C114
C126
R124
Q102
C127
C4004
R4003
R171
D107
C131
C5016
R309
C309
R310
C320
R6316
R130
R132
R1116
R1108
R134
R1107
C314
Q301
C6427
Q6008
R151
C6425
C302
D301
Q314
R4008
R128
R193
C102
R186
R131
R201
C104
C105
23
C4005
R126
R4007
C334
C336
Q6009
C6428
R337
C335
10
20
R4026
R105
C101
R127
LF
R165
C4017
C4018
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPCON
KEY1
KEY2
GND
2RIN
GND
2LIN
GND
2VIN
GND
2YIN
GND
SDET2
GND
2CIN

CN303

CN101

A

SIDE B


C2028 C2030
R2030 R2060
R129
C2031
C2029
R118
C2017
D2018 C2021
R2021 C2012
R2043 C2020
C2022 C2016
C2024
D2020
D2016
R2065
R2064
R2059
R2056
R2051
R2032
R2050
D2024
Q3002
R2068
R2069
R2053
Q3004
Q3001
Q3003
D2013
D2023
R2029
C2027
C2011
D2012
R2027
D2011
D2022
R2048
R2049
C2025
R2038
C2018
R2039
D2021
D2015
R2037
C2015
R2036
R2046
C2014
D2014
C2026
D2019
R2022
R5
D2009
L2001
R2020
D2008
Q6001
C2013
R2041
L2003
C2019
C2010
D2017
C301
R303
L301
R6002
Q5009
C307
C306
L305
R6001
R305
L306
C2023
R2047
L2002
R2035
R2045
L2004
R909
C6001
R302
C303
C5507
Q310
R202
R317
C902
C350
L901
L904
R304
R306
C308
L5004
C349
R6317
C5508
R5012
R301
L307
L903
R5013
D6
R31
R19
R55
R3001
R707
C701
R3164
C907
C905
C917
R910
C918
Q5008
D3
D7
D8
D1
R41
R183
C143
R65
R701
C730
C915
C908
C906
R51
R52
R64
C702
R708
R3002
R703
IC701
R3163
R905
R907
R908
R923
R182
R925
R926
C930
C931
C919
IC901
R425
R928
R933
R927
R929
Q409
R442
R426
R443
C442
C929
R924
Q906
C901
C904
R167
R143
R144
Q101
R142
C106
R186
R101
R1101
R162
R102
R141
R161
R139
L902
C909
R931
R918
R919
C924
C926
R921
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C923
C927
C928
C916
C922
R917
Q903
C925
R920
Q904
IC101
C118
R149
R174
R104
R137
R136
C136
R185
R140
R111
R110
Q103
Q104
C107
C116
R152
R163
R1114
R175
R1112
C135
R1111
R157
R130
R132
R1116
R1108
R134
R1107
R201
R172
C104
C105
IC102
F

(VNP2033-C)

A

4.2 SCRB ASSY

SIDE A

SIDE A

A

B SCRB ASSY

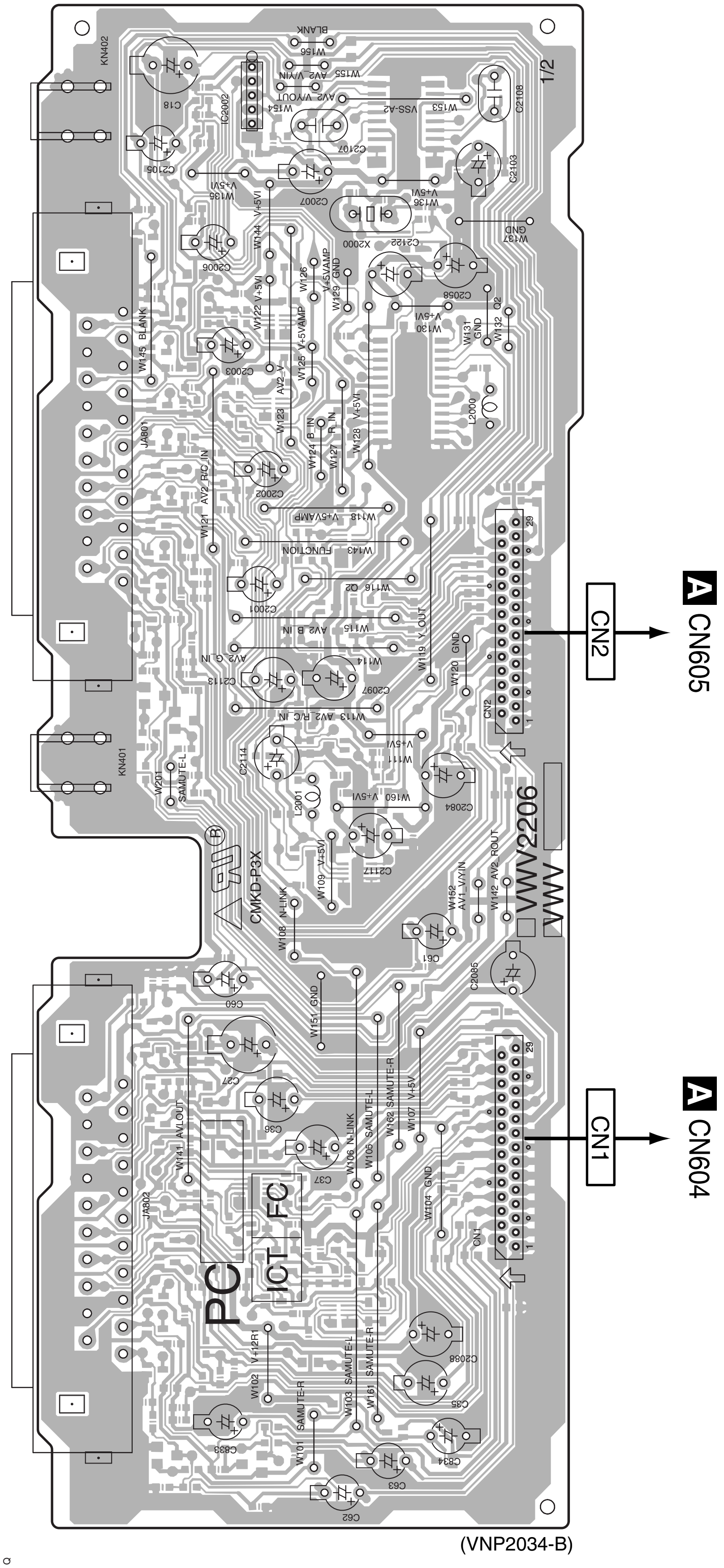
B

C

D

E

F


KN402
C18
IC2002
C2105
W156 BLANK
W155 AV2 V/IN
W154 AV2 V/OUT
W153 VSS-A2
C2107
C2108
1/2
C2103
W135 V+5VI
C2007
W136 V+5VI
X2000
C2122
W137 GND
C2006
W144 V+5VI
W126 V+5VAMP
W129 GND
C2058
W130 V+5VI
W131 GND
W132 Q2
W145 BLANK
W122 V+5VI
W125 V+5VAMP
C2003
AV2 V
W123
W124 B IN
W127 R IN
W128 V+5VI
L2000
JA801
AV2 R/C IN
C2002
W118 V+5VAMP
W121
W143 FUNCTION
W116 Q2
C2001
W115 AV2 B IN
W119 Y OUT
W120 GND
AV2 G IN
W114
C2113
C2097
CN2
29
1
CN605
W113 AV2 R/C IN
W111 V+5VI
C2114
KN401
W201 SAMUTE-L
L2001
W160 V+5VI
C2084
C2117
W109 V+5VI
VWV2206
CMKD-P3X
W108 N-LINK
W152 AV1 V/IN
W142 AV2 ROUT
C61
C2085
C60
W151 GND
C27
C36
W141 AVLOUT
W162 SAMUTE-R
W107 V+5V
W106 N-LINK
W105 SAMUTE-L
C37
W104 GND
JA802
CN1
CN604
PC
ICT
FC
V+12R1
W102
C2098
C35
W103 SAMUTE-L
W161 SAMUTE-R
C833
W101 SAMUTE-R
C834
C63
C62
A
A

(VNP2034-B)

Q
IC
IC2002

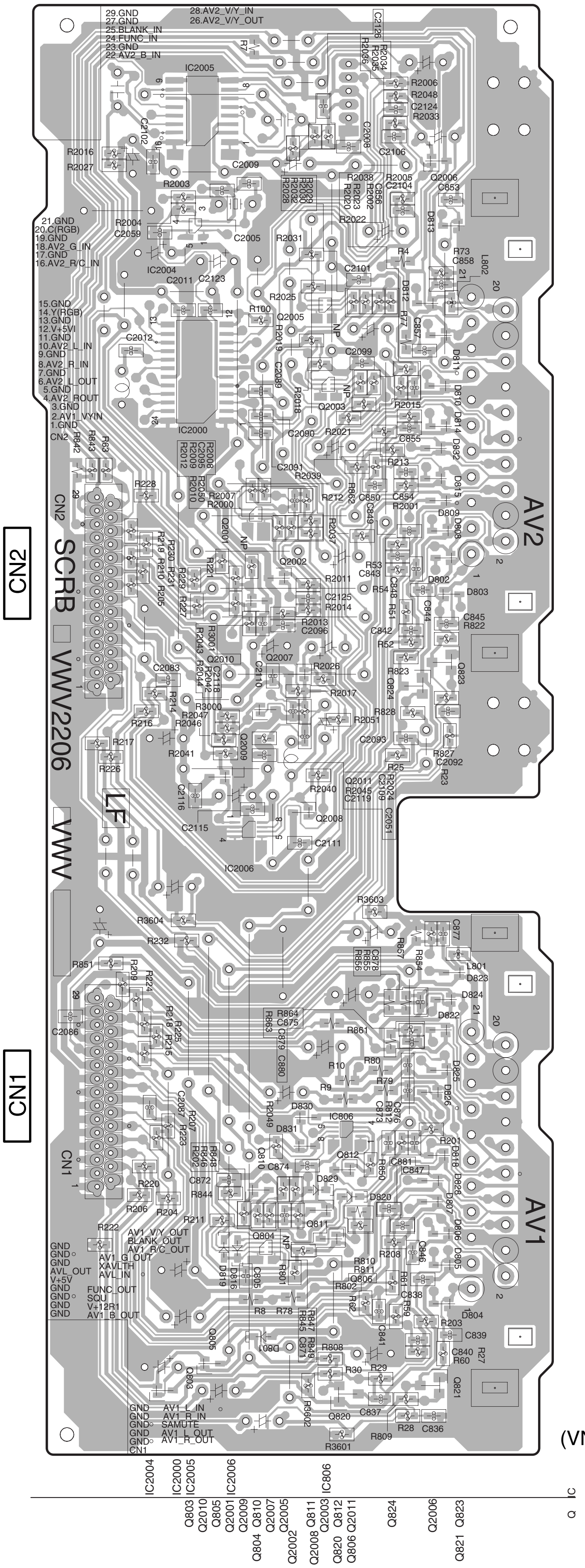
B

B

SIDE B

SIDE B

B SCRB ASSY

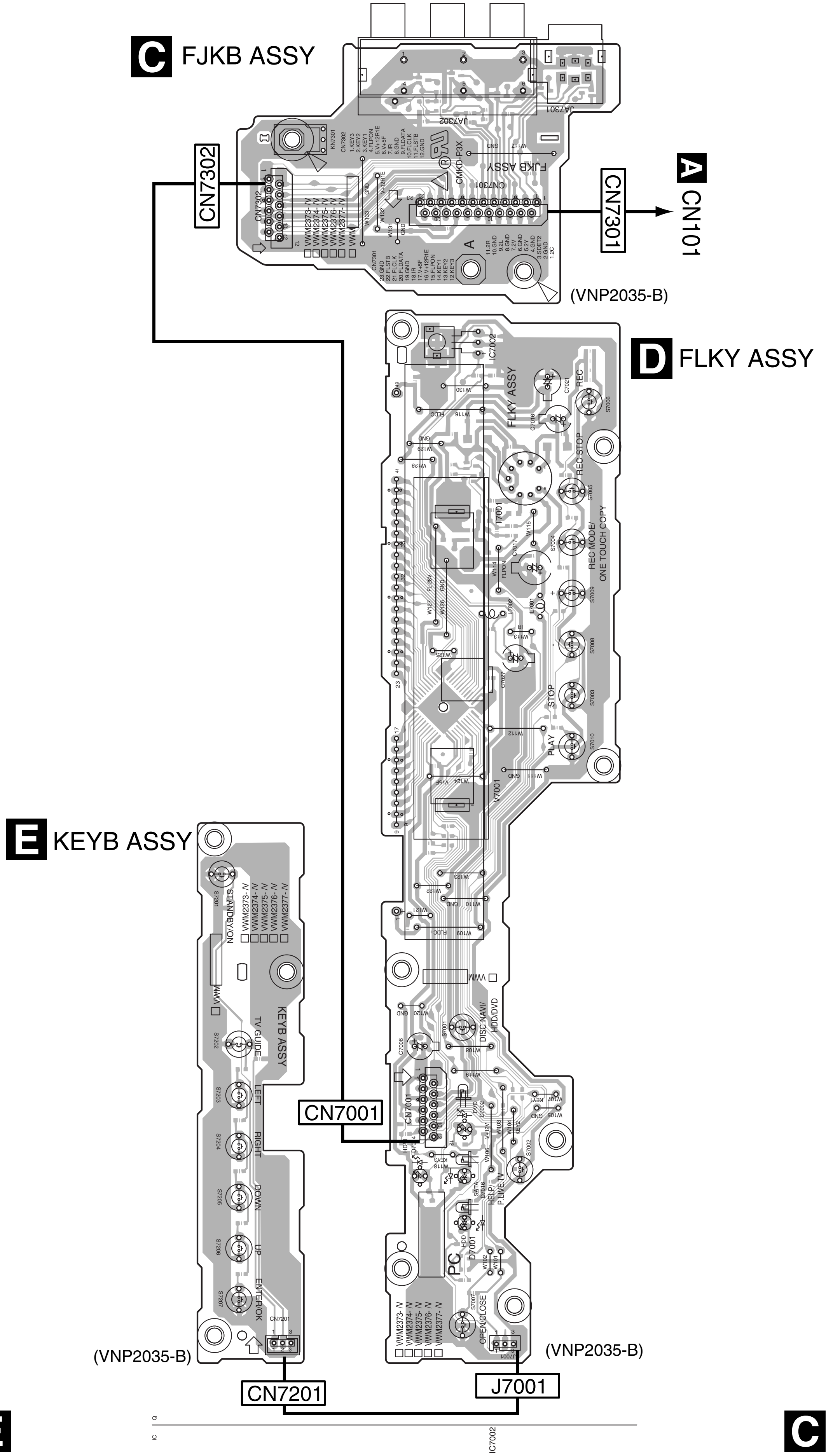

CN2
CN1
SCRB
VWV2206
LF
VWV
AV2
AV1
IC2005
IC2004
IC2000
IC2006
IC806
29.GND
27.GND
25.BLANK_IN
24.FUNC_IN
23.GND
22.AV2_B_IN
28.AV2_V/Y_IN
26.AV2_V/Y_OUT
21.GND
20.C(RGB)
19.GND
18.AV2_G_IN
17.GND
16.AV2_R/C_IN
15.GND
14.Y(RGB)
13.GND
12.V+5VI
11.GND
10.AV2_L_IN
9.GND
8.AV2_R_IN
7.GND
6.AV2_L_OUT
5.GND
4.AV2_ROUT
3.GND
2.AV1_VYIN
1.GND
AV1_V/Y_OUT
BLANK_OUT
AV1_R/C_OUT
AV1_G_OUT
XAVLTH
AVL_IN
FUNC_OUT
SQU
V+12R1
AV1_B_OUT
AVL_OUT
V+5V
AV1_L_IN
AV1_R_IN
SAMUTE
AV1_L_OUT
AV1_R_OUT
IC2004
IC2000
IC2005
IC2006
IC806
IC
Q803
Q2010
Q805
Q2001
Q2009
Q810
Q2007
Q2005
Q811
Q2003
Q812
Q2011
Q824
Q2006
Q823
Q
Q804
Q2002
Q2008
Q820
Q806
Q821

(VNP2034-B)

4.3 FJKB, FLKY and KEYB ASSYS

SIDE A

SIDE A


C FJKB ASSY
CN7302
JA7302
JA7301
FJKB ASSY
CMKD-P3X
CN7301
CN7301
A CN101
(VNP2035-B)
D FLKY ASSY
IC7002
FLKY ASSY
REC
S7006
REC STOP
S7005
T7001
REC MODE/
ONE TOUCH COPY
S7001
S7009
S7008
STOP
S7003
PLAY
S7010
V7001
E KEYB ASSY
STANDBY/ON
S7201
VWM2373-/V
VWM2374-/V
VWM2375-/V
VWM2376-/V
VWM2377-/V
KEYB ASSY
TV GUIDE
S7202
LEFT
S7203
RIGHT
S7204
DOWN
S7205
UP
S7206
ENTER/OK
S7207
CN7201
DISC NAVI/
HDD/DVD
CN7001
CN7001
S7002
HELP/
P LIVE TV
PC
D7001
OPEN/CLOSE
S7007
J7001
(VNP2035-B)
(VNP2035-B)
CN7201
J7001
IC7002

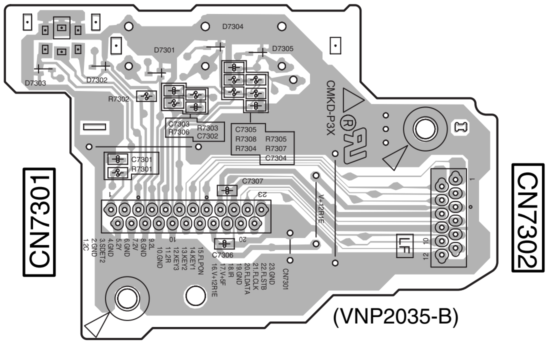
C D E

C D E

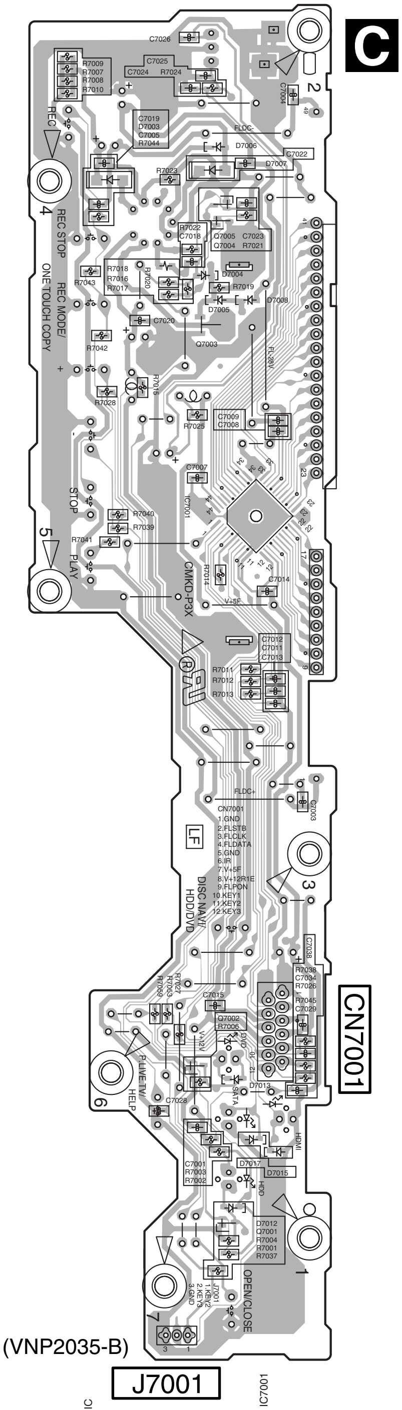
SIDE B

SIDE B

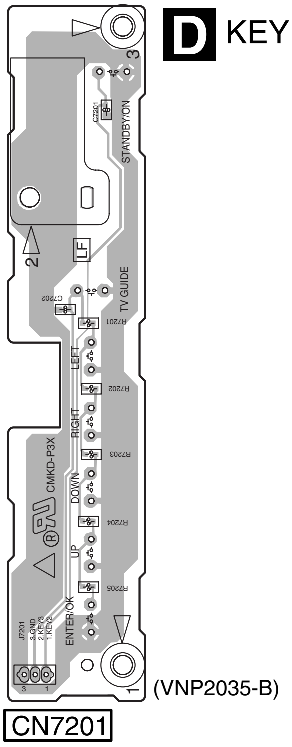
B FJKB ASSY


D7303
D7302
D7301
D7304
D7305
R7302
C7303
R7306
R7303
C7302
C7305
R7308
R7305
R7304
R7307
C7304
C7301
R7301
C7307
C7306
CMKD-P3X
LF
CN7301
CN7302
(VNP2035-B)

C FLKY ASSY


REC
REC STOP
REC MODE/
ONE TOUCH COPY
STOP
PLAY
CMKD-P3X
LF
DISC NAVI/
HDD/DVD
PLAY/E TV/
HELP
OPEN/CLOSE
HDMI
HDD
SATA
CN7001
1.GND
2.FLSTB
3.FLCLK
4.FLDATA
5.GND
6.IR
7.V+5F
8.V+12R1E
9.FLPON
10.KEY1
11.KEY2
12.KEY3
J7001
1.KEY2
2.KEY3
3.GND
IC7001
(VNP2035-B)
J7001
CN7001

D KEYB ASSY


STANDBY/ON
TV GUIDE
LEFT
RIGHT
DOWN
UP
ENTER/OK
CMKD-P3X
LF
C7201
C7202
R7201
R7202
R7203
R7204
R7205
J7201
1.KEY1
2.KEY3
3.GND
(VNP2035-B)
CN7201

Q | IC

Q7003 Q7005 Q7002
Q7004

IC7001
Q7001

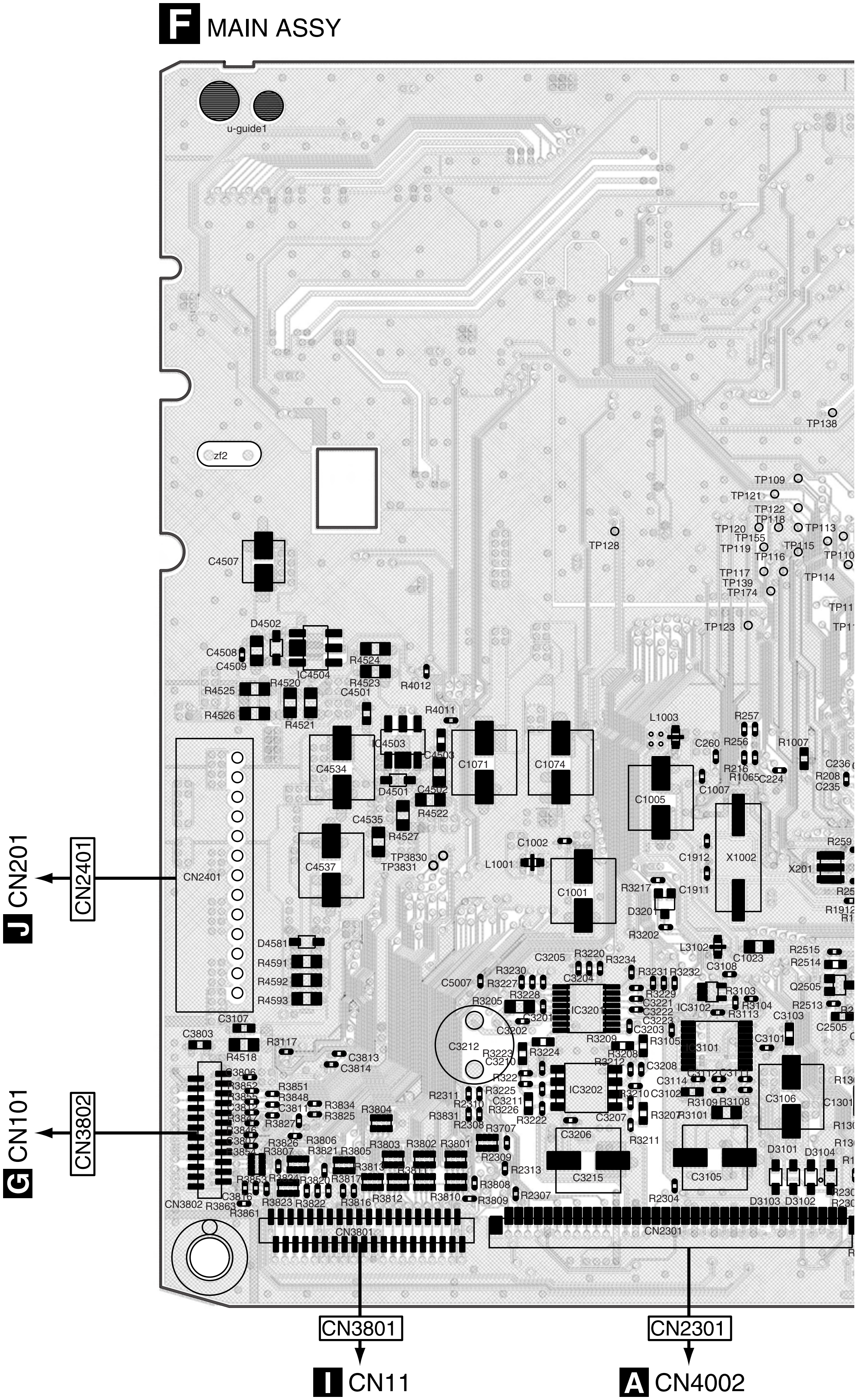
B C D

B C D

4.4 MAIN ASSY

SIDE A

Q	IC
	IC4504
	IC3201
	IC3202


F MAIN ASSY
u-guide1
zf2
C4507
D4502
C4508
C4509
IC4504
R4524
R4523
C4501
R4012
R4525
R4520
R4526
R4521
R4011
IC4503
C4503
C4534
D4501
C4502
R4522
C4535
R4527
C4537
TP3830
TP3831
C1071
C1074
L1003
C1005
C1007
C1002
L1001
C1001
R3217
C1911
D3201
R3202
C1912
X1002
X201
R257
R256
C260
R216
R1065
C224
R1007
C236
R208
C235
R259
R1912
TP138
TP109
TP121
TP122
TP118
TP120
TP155
TP119
TP113
TP115
TP116
TP110
TP117
TP139
TP174
TP114
TP128
TP123
CN2401
CN201
J
D4581
R4591
R4592
R4593
C3107
C3803
R4518
R3117
C3813
C3814
C3806
R3851
R3848
R3834
R3825
R3804
R3827
R3826
R3806
R3807
R3821
R3805
R3803
R3802
R3801
R3853
R3824
R3820
R3817
R3813
R3811
R3812
R3810
R3809
R3808
R3816
R3822
R3823
R3863
R3861
C3816
CN3802
CN101
G
CN3801
CN11
I
C3205
R3220
R3234
R3230
C5007
R3227
R3228
C3204
R3205
IC3201
C3202
C3212
R3223
C3210
R3224
R3209
R3208
R3212
C3203
R3229
C3221
C3222
C3223
R3231
R3232
C3108
R3103
R3104
R3113
IC3102
C3103
R3105
IC3101
C3101
C3208
C3114
C3112
C3111
C3102
R3109
R3108
R3107
R3101
C3106
IC3202
R3225
C3211
R3226
R3222
C3207
R3211
R2311
R2310
R3831
R2308
R3707
R2309
R2313
R2307
R2304
C3206
C3215
C3105
D3101
D3104
D3103
D3102
L3102
C1023
R2515
R2514
Q2505
R2513
C2505
CN2301
CN4002
A

SIDE A

A

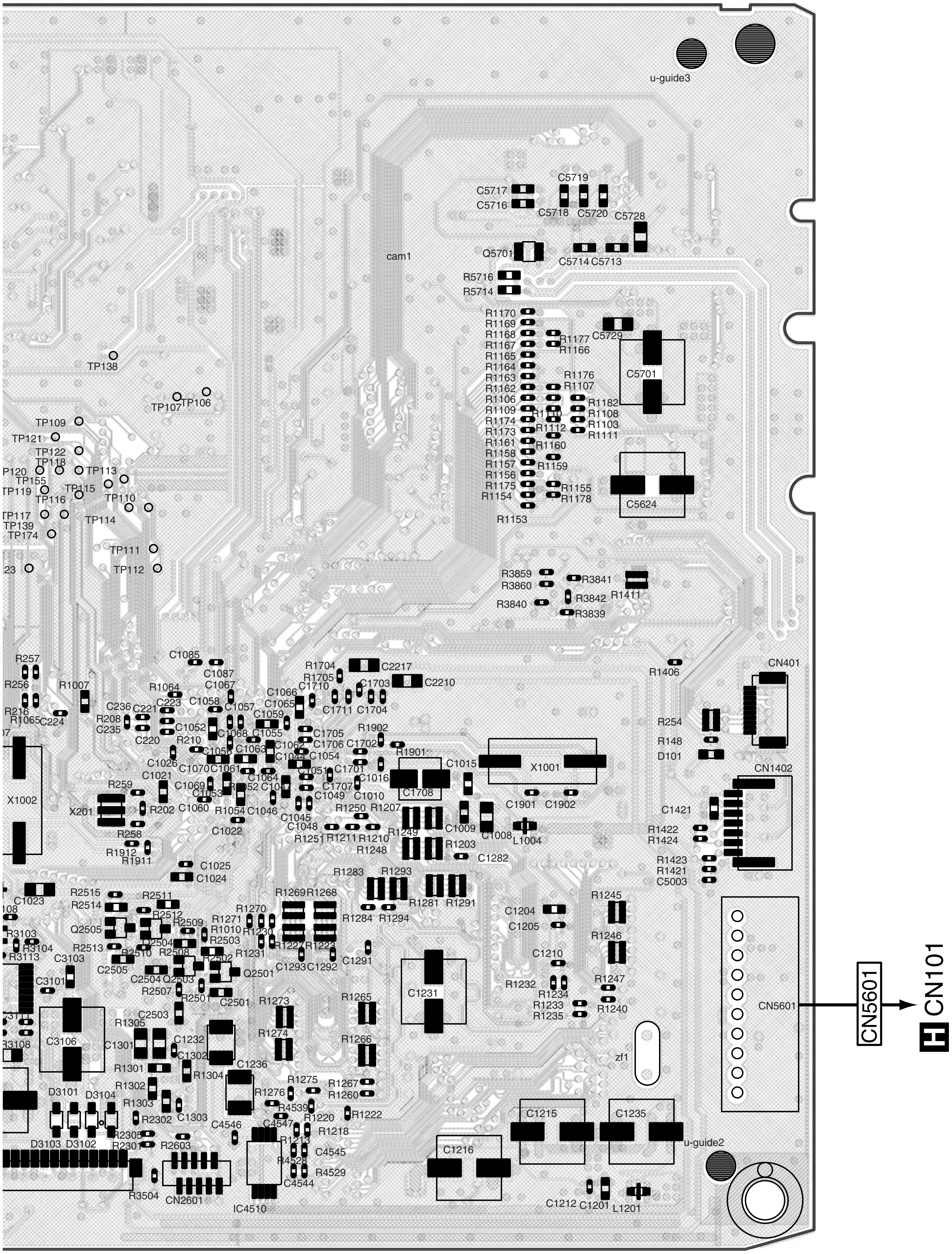
B

C

D

E

F


u-guide3
C5719
C5717
C5716
C5718
C5720
C5728
cam1
Q5701
C5714
C5713
R5716
R5714
R1170
R1169
R1168
R1167
R1165
R1164
R1163
R1162
R1106
R1109
R1174
R1173
R1161
R1158
R1157
R1156
R1175
R1154
R1153
R1177
R1166
C5729
R1176
R1107
C5701
R1182
R1108
R1103
R1111
R1110
R1112
R1160
R1159
R1155
R1178
C5624
TP138
TP107
TP106
TP109
TP121
TP122
TP118
TP120
TP113
TP155
TP115
TP119
TP116
TP110
TP117
TP139
TP114
TP174
TP111
TP112
R3859
R3860
R3841
R3842
R3839
R3840
R1411
C1085
R257
R256
R1007
C1087
C1067
R1064
C223
C1058
C1057
R216
R1065
C224
C236
C221
R208
C235
C220
C1052
R210
C1068
C1056
C1055
C1063
C1059
C1066
C1065
R1704
R1705
C2217
C2210
C1710
C1703
C1711
C1704
C1705
C1706
C1062
C1044
C1054
R1902
C1702
R1901
R1406
CN401
R254
R148
D101
CN1402
C1026
C1021
C1070
C1061
C1064
C1047
C1051
C1701
C1707
C1016
C1015
X1001
X1002
R259
X201
R202
C1069
C1053
C1060
R1052
R1054
C1046
C1045
C1048
C1049
C1010
C1708
C1901
C1902
C1421
R1250
R1207
R1249
C1009
C1008
L1004
R1422
R1424
C1022
R258
R1912
R1911
R1251
R1211
R1210
R1248
R1203
C1282
R1423
R1421
C5003
C1025
C1024
R1283
R1293
C1023
R2515
R2514
R2511
R2512
R2509
R1269
R1268
R1281
R1291
R1245
C1204
C1205
R1270
R1271
R1010
R1230
R1284
R1294
R3103
Q2505
R3104
R3113
R2513
C3103
R2510
Q2504
R2508
R2503
R1231
R1227
R1223
C1293
C1292
C1291
R1246
C1210
C2505
C3101
C2504
Q2503
Q2502
Q2501
R2507
R2501
C2501
R1273
R1265
C1231
R1232
R1247
R1234
R1233
R1235
R1240
CN5601
C3106
C2503
R1305
C1232
R1274
R1266
zf1
C1301
C1302
R1301
R1304
C1236
R3108
R1302
R1275
R1267
R1260
D3101
D3104
R1303
R1276
R4539
R2302
C1303
R1222
C4546
C4547
R1220
R1218
C1215
C1235
u-guide2
D3103
D3102
R2305
R2301
R2603
R1213
R4528
C4545
C1216
R4529
C4544
R3504
CN2601
IC4510
C1212
C1201
L1201
CN5601
H CN101

(VNP2038-A)

F

SIDE B

A

Q	IC
	IC5702
	IC501
	IC5701
	IC102
	IC5621
	IC101 IC1102
	IC5631
Q1111	IC4512 IC4507
	IC3802
Q1811	
	IC4511
Q1801	IC1001
	IC4531
Q2502	
	IC3103
Q3712	IC1201
Q3711	
Q4561	IC2201 IC1221 IC3701 IC1301
Q3501	IC2202

B

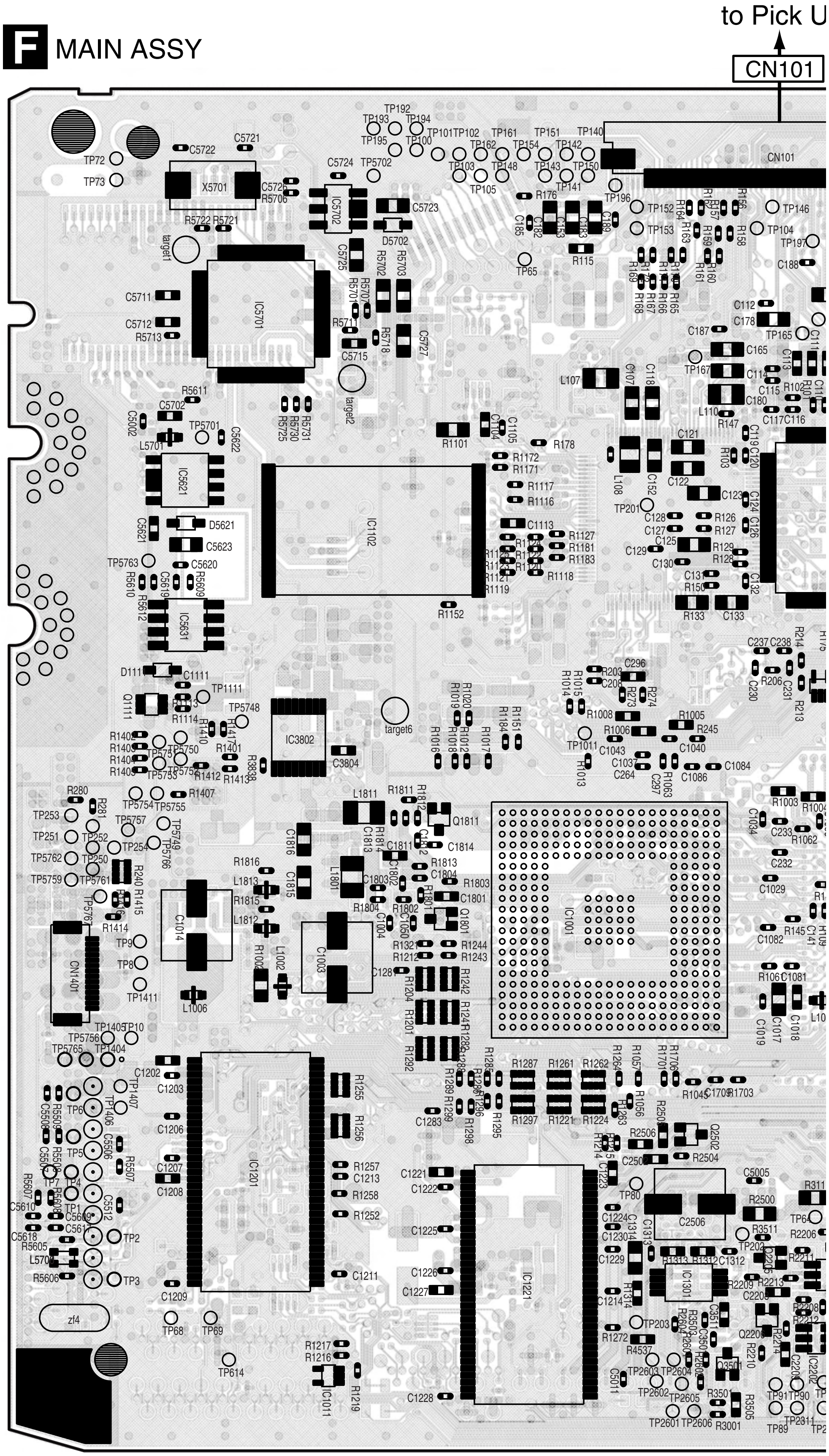
C

D

E

F

F MAIN ASSY



to Pick U
CN101
CN101
X5701
IC5702
IC5701
D5702
L107
L108
IC5621
IC1102
D5621
IC5631
D1111
Q1111
IC3802
target1
target2
target6
L1811
Q1811
L1801
L1813
L1812
Q1801
IC1001
C1014
C1003
L1002
L1006
CN1401
IC1201
IC1221
C2506
Q2502
IC1301
Q3501
IC1011
zf4

F

SIDE B

A

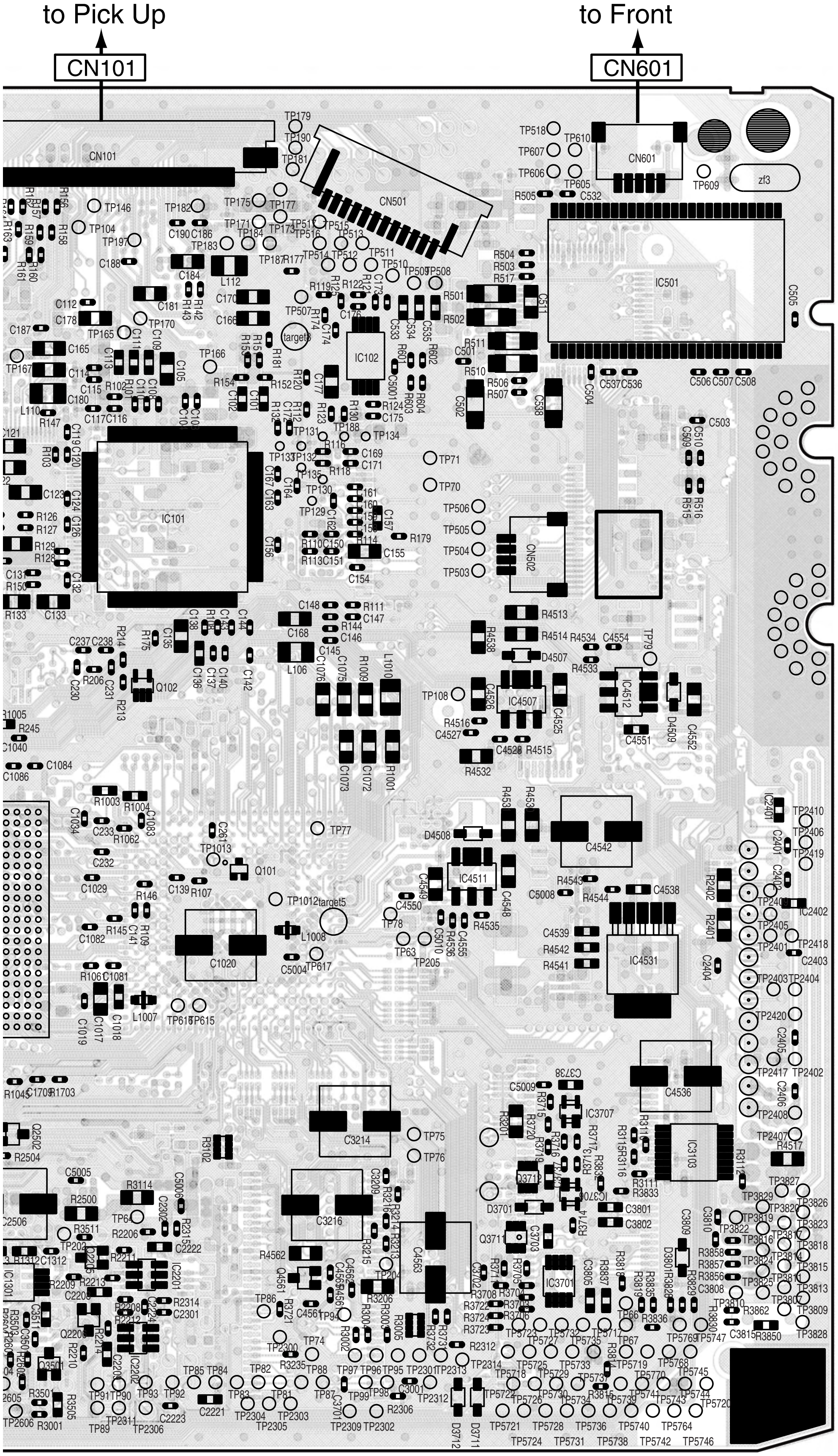
B

C

D

E

F


to Pick Up
CN101
to Front
CN601
CN101
CN501
CN601
zf3
IC501
IC102
IC101
CN502
IC4507
IC4512
IC4511
IC4531
C4542
C4536
C1020
C3214
C3216
C4563
IC3707
IC3103
IC3701
IC2201
IC1301
IC2202
Q101
Q102
Q2502
Q2209
Q3501
Q4561
Q3711
D4507
D4508
D4509
D3701
D3712
D3711
L106
L112
L1007
L1008
TP77
TP71
TP70
TP108
TP1012
target5
target8

(VNP2038-B)

F

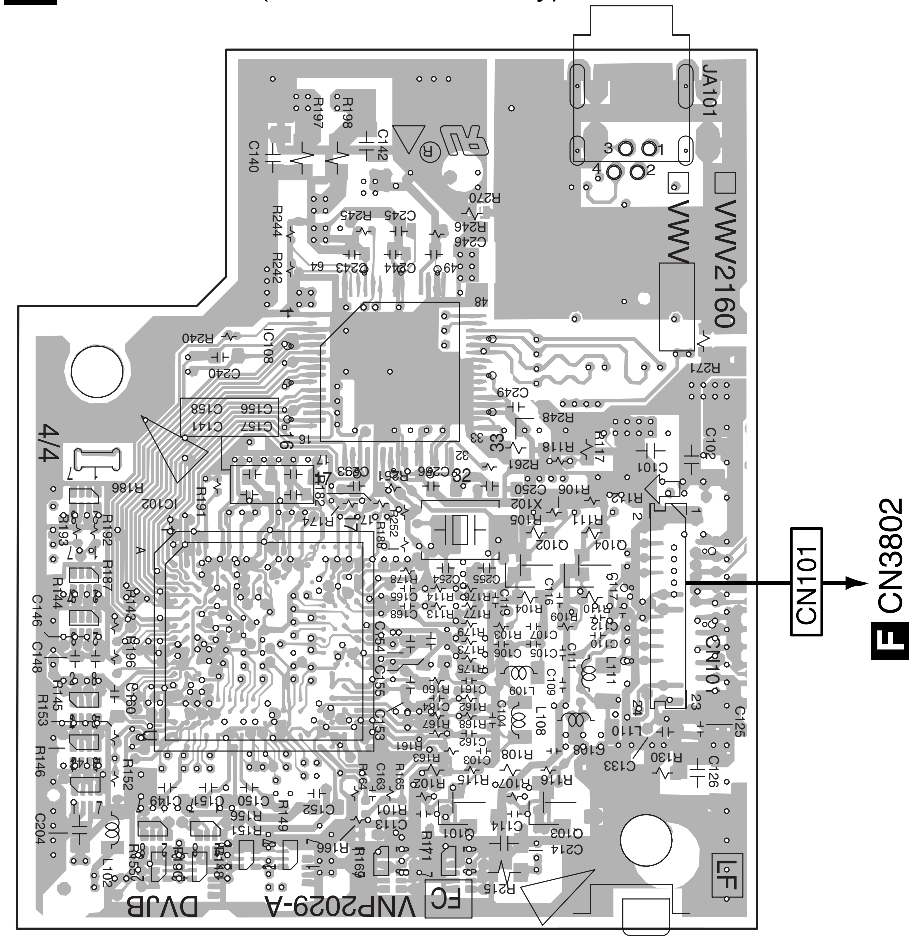
4.5 DVJB ASSY (DVR-640H-AV Only)

SIDE A **SIDE A**

A
B
C
D
E
F

IC	Q
IC108	
IC102	
	Q102 Q104
	Q101 Q103

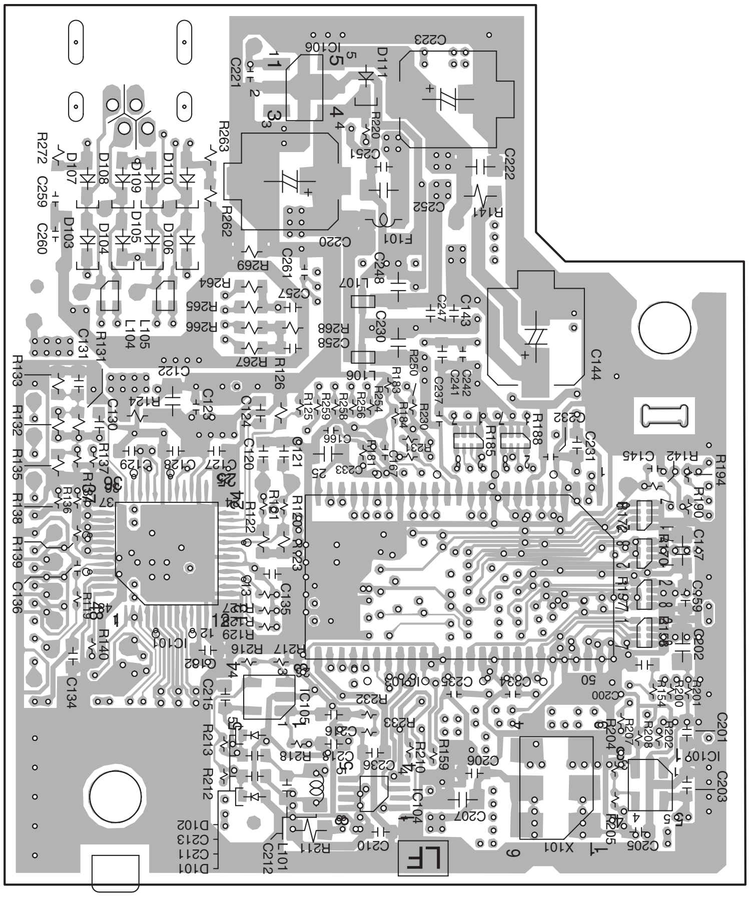
G DVJB ASSY (DVR-640H-AV Only)


JA101
VWV2160
IC108
IC102
4/4
Q102
Q104
Q101
Q103
X102
CN101
F CN3802
CN101
FC VNP2029-A
DVJB
L-F

(VNP2029-A)

G DVJB ASSY (DVR-640H-AV Only)

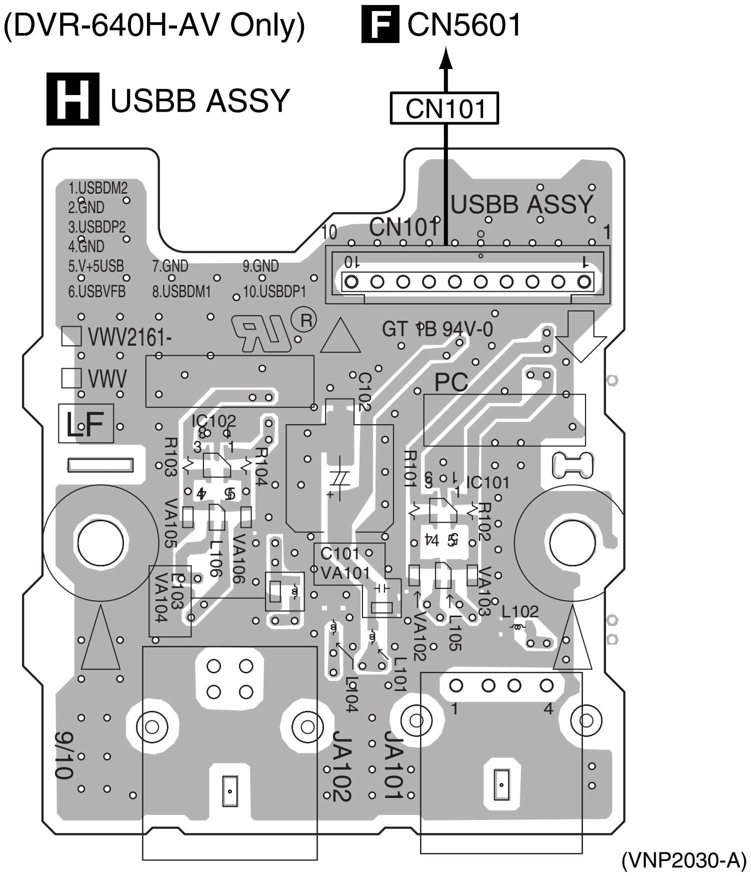
IC	Q
IC106	
IC101	
IC103	
IC105	
IC107	
IC104	


IC106
C223
C221
D111
R220
C251
C222
R141
C252
F101
C220
R263
R262
R272
D107
D108
D109
D110
C259
C260
D103
D104
D105
D106
R269
C261
C248
L107
C257
R264
R265
R266
R268
C258
C230
C143
C247
C144
R267
R126
L106
L105
L104
R131
C131
C122
R133
R132
R135
R138
R139
C136
C130
R124
C123
C124
R125
R259
R183
C241
C242
C239
R185
R188
C232
C231
C145
R142
R194
R137
C129
C128
C127
C120
C121
R136
C166
C233
R190
C167
R172
R170
R177
R178
C259
C202
R140
IC101
R122
R123
C135
R129
R216
R217
C182
C215
IC105
R232
R233
R210
R159
C206
C200
R154
R200
R201
R202
C201
R204
R208
IC103
C203
R213
R218
R212
C236
C210
IC104
C207
R205
C205
X101
D102
C213
C211
D101
C212
L101
R211
C134
LF

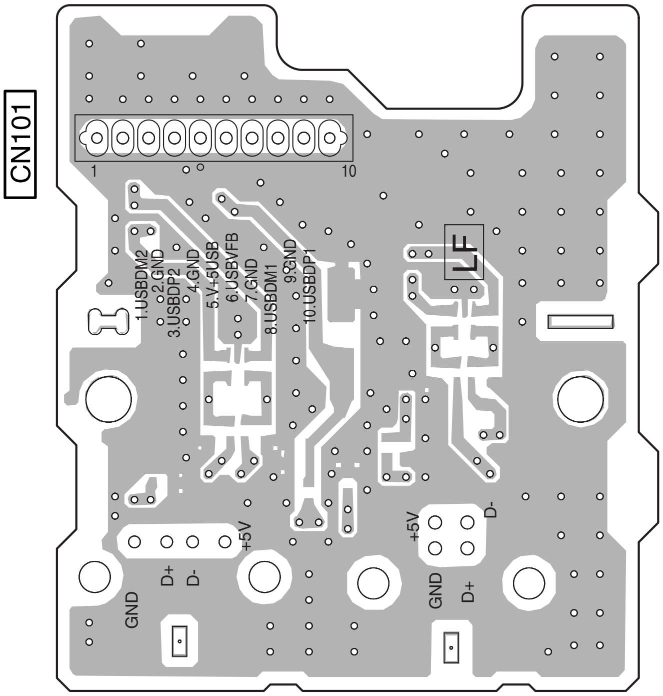
(VNP2029-A)

4.6 USBB ASSY (DVR-640H-AV Only)

SIDE A **SIDE A**


(DVR-640H-AV Only)
F CN5601
H USBB ASSY
CN101
USBB ASSY
CN101
10
1
1.USBDM2
2.GND
3.USBDP2
4.GND
5.V+5USB
6.USBVFB
7.GND
8.USBDM1
9.GND
10.USBDP1
VWV2161-
VWV
LF
GT PB 94V-0
PC
C102
IC102
R103
R104
VA105
VA106
L106
C103
VA104
C101
VA101
R101
IC101
R102
VA103
VA102
L105
L102
L101
L104
JA102
JA101
9/10
1
4
(VNP2030-A)

H USBB ASSY (DVR-640H-AV Only)


CN101
1
10
1.USBDM2
2.GND
3.USBDP2
4.GND
5.V+5USB
6.USBVFB
7.GND
8.USBDM1
9.GND
10.USBDP1
LF
+5V
D+
D-
GND
+5V
D-
GND
D+

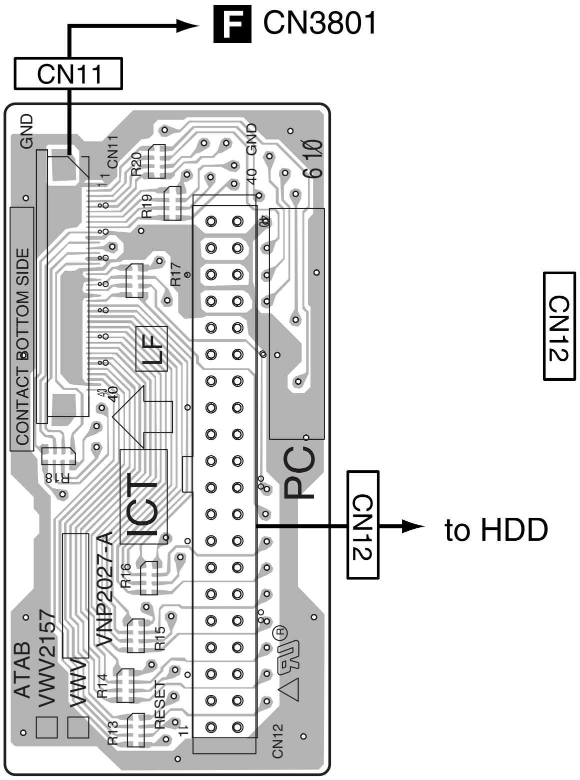
(VNP2030-A)

4.7 ATAB ASSY

SIDE A

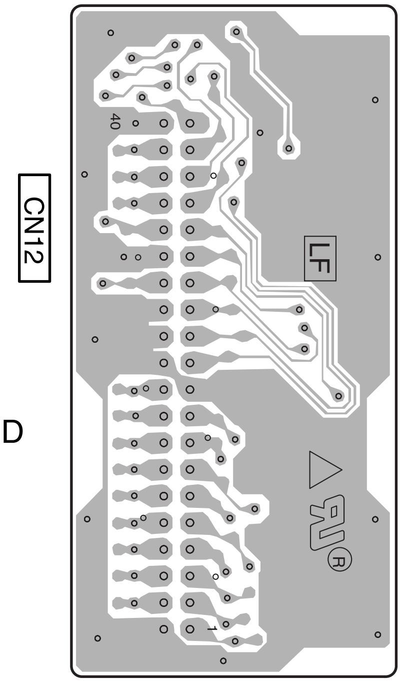
SIDE B

I ATAB ASSY


F CN3801
CN11
GND
CN11
R20
R19
40
GND
6 10
R17
CONTACT BOTTOM SIDE
LF
40
R18
ICT
PC
VNP2027-A
R16
R15
R14
RESET
R13
1
ATAB
VWV2157
VWV
CN12
CN12
to HDD

(VNP2027-B)

SIDE A



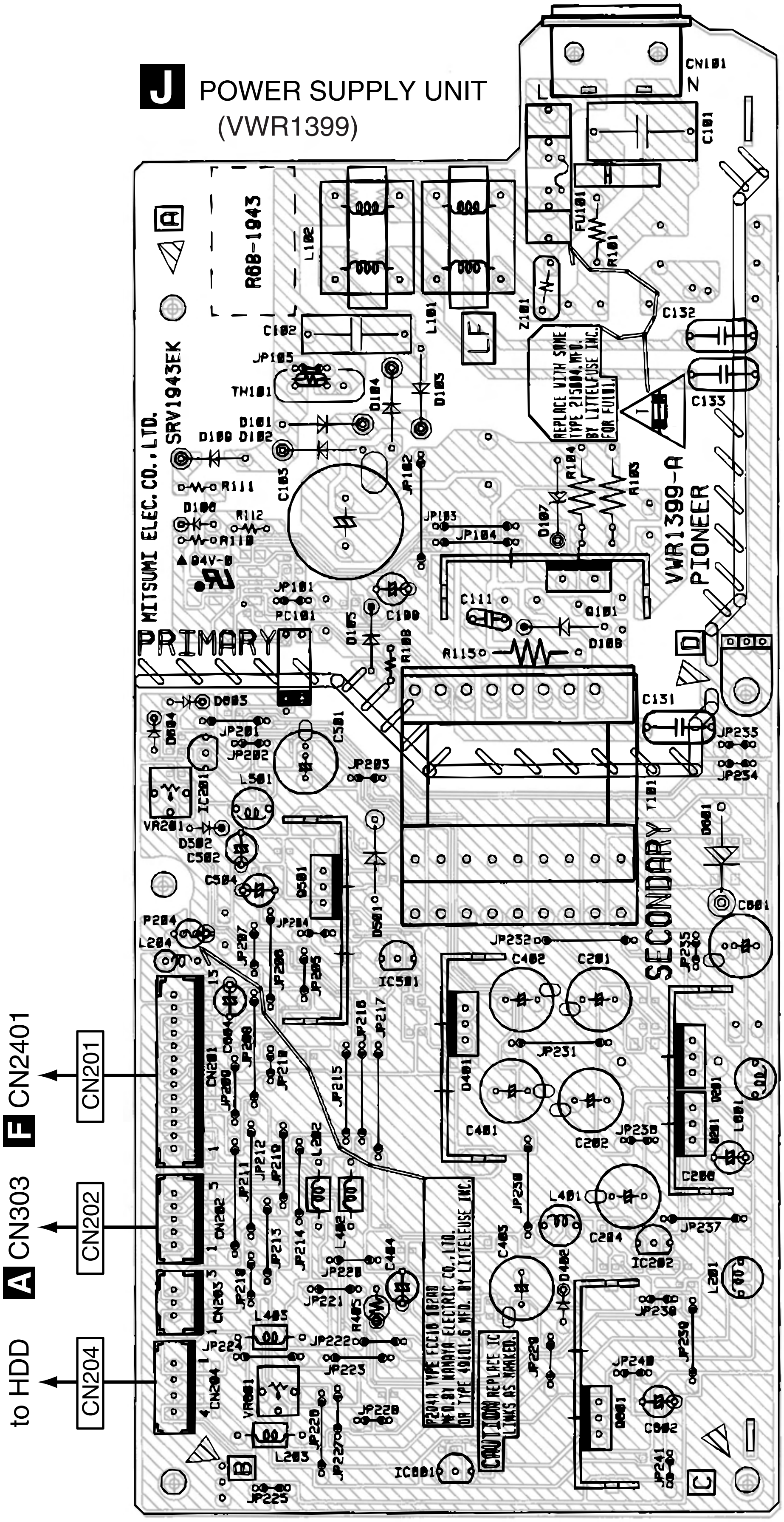
(VNP2027-B)

SIDE B

4.8 POWER SUPPLY UNIT

SIDE A **SIDE A**

J POWER SUPPLY UNIT
(VWR1399)

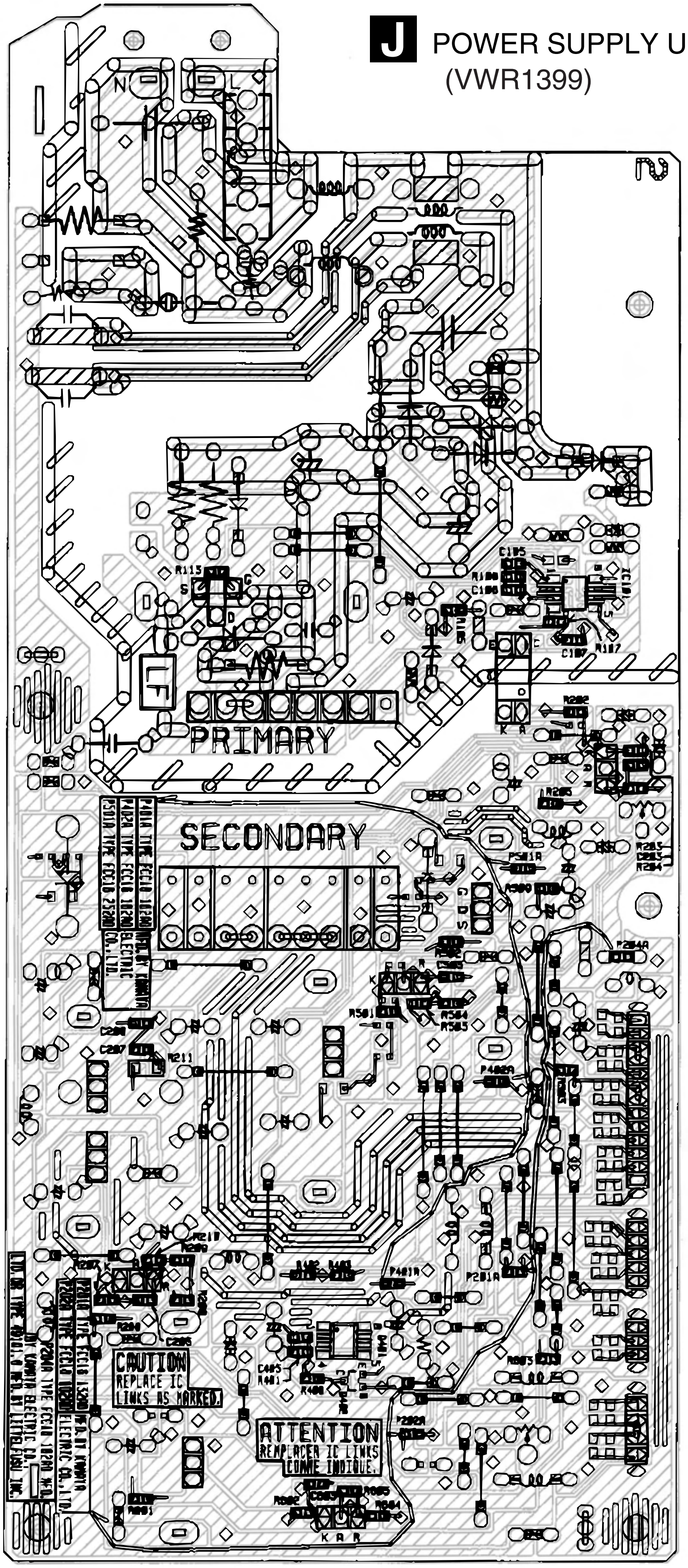

CN101
L
N
C101
FU101
R101
Z101
C132
C133
L102
L101
R6B-1943
LF
C102
JP105
TH101
D104
D105
D101
D102
D100
C103
JP102
R111
D106
R112
R110
94V-0
JP103
JP104
R104
R103
D107
MITSUMI ELEC.CO.,LTD.
SRV1943EK
REPLACE WITH SAME TYPE 215004.MFD. BY LITTELFUSE INC. FOR FU101.
VWR1399-A
PIONEER
JP101
PC101
C109
C111
Q101
D108
D103
R108
R115
PRIMARY
C131
D603
D604
JP201
JP202
C501
JP235
JP234
JP203
L501
T101
IC201
VR201
D502
C502
C504
Q501
D501
D601
C601
SECONDARY
P204
L204
JP204
JP207
JP206
JP205
IC501
JP232
C402
C201
JP235
CN201
C604
JP208
JP209
JP210
JP216
JP217
JP215
JP231
D401
Q201
L601
C401
C202
JP230
CN2401
F
CN202
JP211
JP212
JP219
L202
C200
JP213
JP214
L402
JP220
C404
JP221
R405
C403
D402
L401
C204
JP237
IC202
L201
JP236
CN303
A
CN203
JP218
L403
JP224
JP222
JP223
JP229
JP240
JP239
CN204
to HDD
VR601
L203
JP226
JP227
JP228
Q601
C602
P204A TYPE FCC16 162A0 MFD.BY NANKAYA ELECTRIC CO.,LTD OR TYPE 49101.6 MFD. BY LITTELFUSE INC.
CAUTION REPLACE IC LINKS AS MARKED.
IC601
JP241
JP225
B
C
D

J **J**

SIDE B

SIDE B

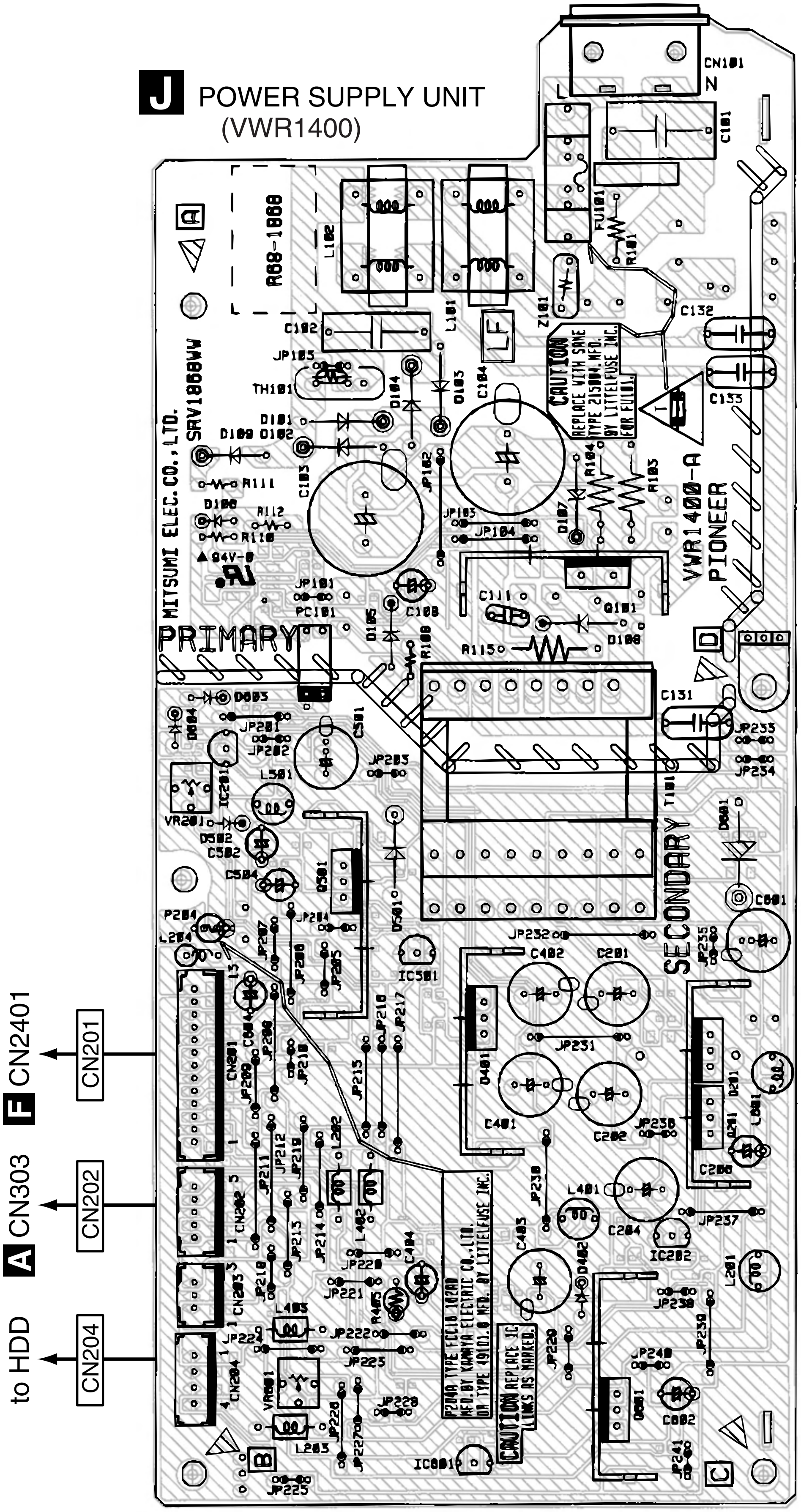
J POWER SUPPLY UNIT
(VWR1399)



N
L
PRIMARY
SECONDARY
LF
C105
R115
R107
C107
R202
R203
P501A
R500
P204A
R501
R504
R505
C205
C207
R211
P402A
R210
R209
R207
R208
C206
P401A
P201A
C405
R401
R400
R403
P202A
R602
C603
R605
R604
R601
CAUTION
REPLACE IC
LINKS AS MARKED.
ATTENTION
REMPLACER IC LINKS
COMME INDIQUE.
K A R

SIDE A **SIDE A**

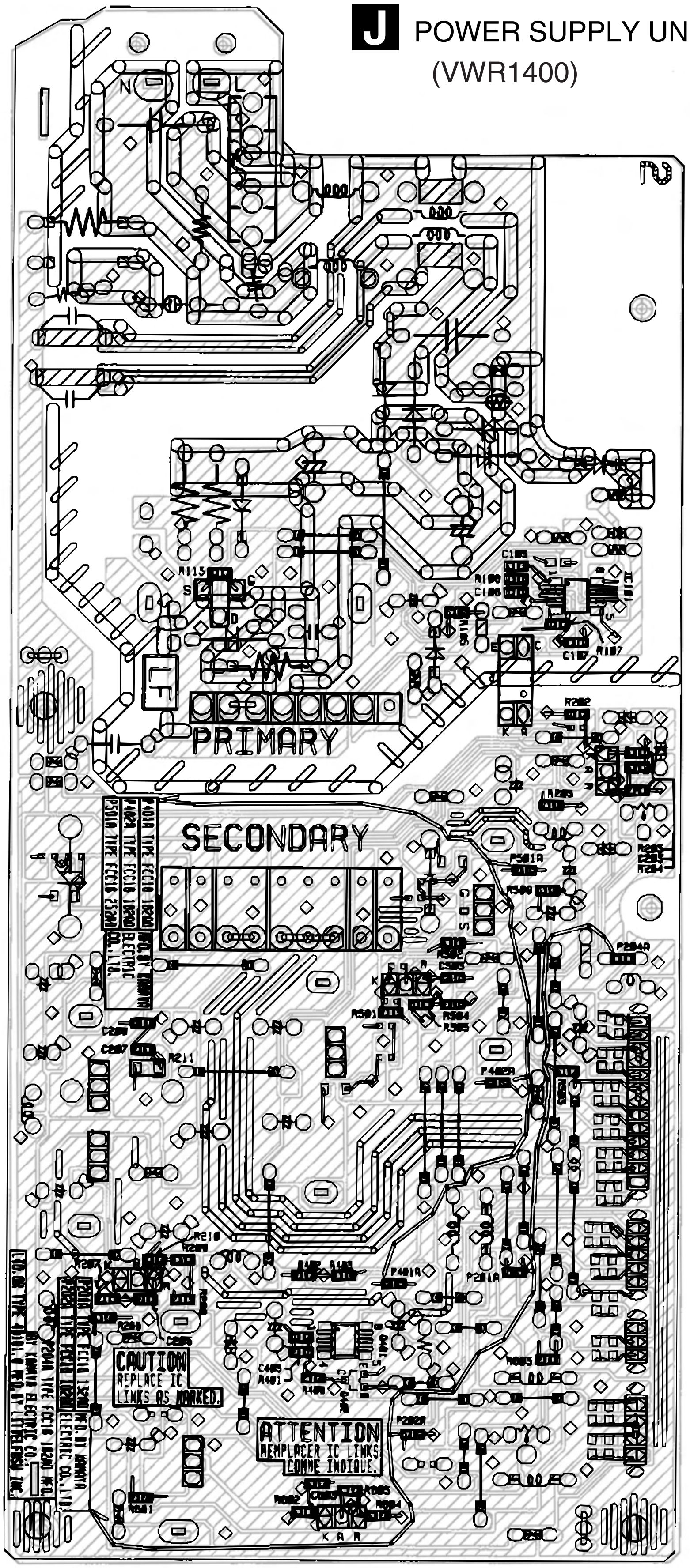
J POWER SUPPLY UNIT (VWR1400)


CN101
N
L
C101
FU101
R101
L102
L101
R68-1060
LF
Z101
C132
C133
C102
JP103
TH101
D104
D103
C104
CAUTION REPLACE WITH SAME TYPE 215004.MFD. BY LITTELFUSE INC. FOR FU101.
D101
D102
D109
R111
D108
R112
R110
C103
JP102
R104
R105
D107
JP183
JP104
94V-0
SRV1068WW
MITSUMI ELEC.CO.,LTD.
VWR1400-A
PIONEER
JP101
PC101
C108
D105
R108
C111
Q101
D100
R115
PRIMARY
D503
D504
JP201
JP202
C501
L501
JP203
IC201
VR201
D502
C502
C504
Q501
D501
T101
C131
JP233
JP234
D601
C601
SECONDARY
P204
L204
JP207
JP204
JP206
JP205
IC501
JP232
JP235
C402
C201
CN201
C604
JP208
JP209
JP210
JP218
JP216
JP217
JP215
D401
JP231
Q201
L601
C401
C202
JP236
C203
CN202
JP211
JP212
JP219
L202
JP239
L401
C204
IC202
JP237
JP213
JP214
L402
C404
C403
D402
L201
CN203
JP210
JP220
JP221
R405
L403
JP239
JP224
JP222
JP223
JP220
JP240
JP250
CN204
VR601
JP226
JP228
JP227
Q601
C602
L203
IC601
JP241
JP225
P204A TYPE FCC16 102AR MFD. BY KAMAYA ELECTRIC CO.,LTD. OR TYPE 49101.0 MFD. BY LITTELFUSE INC.
CAUTION REPLACE IC LINKS AS MARKED.
A
B
C
D
CN2401
F
CN201
CN303
A
CN202
to HDD
CN204

J **J**

SIDE B **SIDE B**

J POWER SUPPLY UNIT
(VWR1400)


N
L
LF
R115
C105
R106
C106
R107
C107
R202
R205
PRIMARY
SECONDARY
P401A TYPE FCC16 1R0A
P402A TYPE FCC16 1R0A
P501A TYPE FCC16 2R5A
MFD. BY KAMAYA ELECTRIC CO., LTD.
P501A
R500
P204A
R501
R504
R505
C200
C207
R211
P402A
P401A
P201A
R210
R209
R207
R208
C205
C405
R401
R406
P202A
R502
C503
R503
K A R
G D S
CAUTION
REPLACE IC LINKS AS MARKED.
ATTENTION
REMPLACER IC LINKS COMME INDIQUE.

J **J**

5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*

● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 x 10^1 → 561 ························ RD1/4PU$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω → 47 x 10^3 → 473 ························ RD1/4PU$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω → R50 ························ RN2H$\boxed{R}\boxed{5}\boxed{0}$K
1 Ω → 1R0 ························ RS1P$\boxed{1}\boxed{R}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 x 10^1 → 5621 ························ RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	DVR-640H-AV	DVR-540H-S
NSP	1..TUJB ASSY	VWM2371	VWM2370
NSP	2..TUJB AI	VWV2169	VWV2169
	3..TUJB ASSY (for Service)	VXX3109	VXX3108
	1..SCRB ASSY	VWV2206	VWV2206
NSP	1..FLKB ASSY	VWM2377	VWM2377
NSP	2..FLKB AI	VWG2566	VWG2566
	3..FLKY ASSY (for Service)	VXX3111	VXX3111
	3..KEYB ASSY (for Service)	VXX3112	VXX3112
	3..FJKB ASSY (for Service)	VXX3113	VXX3113
	1..MAIN ASSY (for Service)	VXX3157	VXX3159
	1..DVJB ASSY	VWV2160	Not used
	1..USBB ASSY	VWV2161	Not used
	1..ATAB ASSY (for Service)	VXX3140	VXX3140
⚠	1..POWER SUPPLY UNIT	VWR1339	VWR1339

A TUJB ASSY

VXX3109 and VXX3108 are constructed the same except for the following :

Mark	Symbol and Description	VXX3109	VXX3108
	R153	Not used	RD1/4PU393J
	R154	RD1/4PU153J	RD1/4PU682J

A TUJB ASSY (DVR-640H-AV)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC701		BA4560RF
	IC4001		BD4846G
	IC102		BU4220G
⚠	IC1001, IC5001		CEK1278
	IC100		HA118326APFR
	IC2002		MM1503XN
	IC901		MSP3417G
	IC801		PDF015A
	IC101		PMC006A8
⚠	Q301, Q302, Q811, Q831		2SA1036K
	Q4002, Q401, Q410, Q5008, Q5009		2SA1576A
	Q903, Q904		2SA1576A
	Q303, Q6009, Q812, Q832		2SC2411K
	Q102, Q107, Q108, Q310, Q4003		2SC4081
	Q409, Q5011, Q906		2SC4081
	Q5010		2SC5876
	Q3001, Q3002, Q3010, Q4, Q5006		2SD2114K

Mark	No.	Description	Part No.
	Q3210		DTA124EUA
	Q106		DTA143EUA
	Q101		DTC114TUA
	Q2, Q307, Q313, Q3211, Q4001		DTC124EUA
	Q810, Q830		DTC124EUA
	Q5007		HN1A01FU
	Q6008		RN4903
	Q105, Q3011		UMD2N
	Q6001		UMF21N
	Q306		UMF23N
	D106		1SR154-400
	D101, D107, D3201, D3202		1SS355
	D4001, D4002, D4005, D5004, D5006		1SS355
	D811		1SS355
	D105		DAP202U
	D1		UDZS11(B)
	D301		UDZS15(B)
	D830		UDZS3R9(B)
	D2		UDZS6R8(B)

Mark	No.	Description	Part No.
	D810		UDZS9R1(B)
	D2011, D2012		UMZ6R8N

COILS AND FILTERS

	L5005	RADIAL INDUCTOR	ATH1109
	L305, L306	INDUCTOR	CTF1306
	L2005	INDUCTOR	CTF1388
	L301, L302, L5004	INDUCTOR	CTF1399
	L901, L904	INDUCTOR	CTF1399
	L101		LAU470J
	L902		LCYA100J2520
	L903		LCYA101J2520
	L501		LCYA120J2520
	L401, L403		LCYA150J2520
	L402, L404		LCYA180J2520
	L5003		LRCA331J

CAPACITORS

	C113, C114, C141		CCSRCH100D50
	C4011, C4012, C68, C69, C909		CCSRCH101J50
	C117, C129		CCSRCH120J50
	C306, C307, C405, C411		CCSRCH330J50
	C4009		CCSRCH331J50
	C2028, C2029, C5013		CCSRCH471J50
	C906, C908		CCSRCH560J50
	C925, C928		CCSRCH561J50
	C408, C413		CCSRCH680J50
	C404, C410		CCSRCH7R0D50
	C406, C412		CCSRCH820J50
	C403, C409, C907, C915		CCSRCJ3R0C50
	C937		CEAL100M50
	C938		CEAL3R3M50
	C66, C67		CEANP4R7M50
	C14, C341, C711, C712, C939		CEAT100M50
	C139, C23, C25, C39, C44		CEAT101M10
	C6649, C812, C813, C832, C833		CEAT101M10
	C3111, C319, C323, C351		CEAT101M16
	C130, C2035-C2037, C313, C5506		CEAT102M6R3
	C2032, C4		CEAT1R0M50
	C111, C310		CEAT220M25
	C3128		CEAT221M6R3
	C119		CEAT2R2M50
	C2038, C2039, C5015		CEAT470M16
	C128, C2033, C2034		CEAT471M6R3
	C76		CEAT4R7M50
	C5004		CKSQYF105Z50
	C2005, C2011, C901, C923, C926		CKSRYB103K50
	C105, C12, C17, C20, C30		CKSRYB104K16
	C49, C54, C6428, C8, C905		CKSRYB104K16
	C919		CKSRYB104K16
	C10, C11, C13, C19, C2		CKSRYB105K10
	C2109, C26, C36, C40, C4003		CKSRYB105K10
	C41, C42, C45-C48, C7		CKSRYB105K10
	C72, C73, C77-C82		CKSRYB105K10
	C301, C5507		CKSRYB222K50
	C924, C927		CKSRYB392K50
	C101, C102, C104, C115		CKSRYF104Z25
	C135, C136, C18, C21, C22		CKSRYF104Z25
	C24, C3, C350, C38		CKSRYF104Z25
	C4001, C4002, C4004, C4016, C407		CKSRYF104Z25
	C443, C5005, C5010, C5014, C6		CKSRYF104Z25

Mark	No.	Description	Part No.
	C70, C71, C730, C74, C75		CKSRYF104Z25
	C810, C811, C820, C830, C831		CKSRYF104Z25
	C917, C918		CKSRYF104Z25
	C142, C144, C43, C5, C929		CKSRYF105Z10
	C701, C702		CKSYB106K10

RESISTORS

	R156		RD1/4PU153J
	R155		RD1/4PU393J
	R701, R703		RN1/16SE1002D
	R707, R708		RN1/16SE8201D
	R313, R824, R909		RS1/10S0R0J
	R302, R304		RS1/10S100J
	R303, R5012		RS1/10S120J
	R311		RS1/10S471J
	R2003, R2006, R2011, R2015, R2023		RS1/10S75R0F
	R2025, R2027, R2029, R2050		RS1/10S75R0F
	R5007		RS1/16S1203F
	R2016, R2017		RS1/16S1800F
	R402, R405		RS1/16S2700F
	R5006		RS1/16S2702F
	R2070		RS1/16S3304F
	R177		RS1/16S7500F
	Other Resistors		RS1/16S###J

OTHERS

	U301	TV TUNER PACK	VXF1106
	X101 (15.0 MHz)	CRYSTAL	CSS1653
	X102(32KHz)	CRYSTAL	VSS1197
	X801	CERAMIC OSCILLATOR	CSS1616
	X901 (18.432MHz)		VSS1189
	KN405	WRAPPING TERMINAL	VNF1084
	CN101	23P FFC CONNECTOR	9604S-23C
	CN102	9P FFC CONNECTOR	VKN2015
	CN303	KR CONNECTOR	B5B-PH-K
	CN604, CN605	29P FFC CONNECTOR	VKN1433
	CN4002	35P FFC CONNECTOR	VKN1439
	CN5001	KR CONNECTOR	B2B-PH-K
	JA2003	JACK	VKB1193
	JA2004	1P PIN JACK	VKB1159
	JA2010	3P PIN JACK	VKB1165
	JA4001, JA4002	REMOCON JACK	RKN1004

B SCRB ASSY

SEMICONDUCTORS

	IC2000		BH7236AF
	IC2002		LA7213
	IC2006		TC4W53FU
	IC2005		TC74HC123AF
	IC2004		TC7SU04FU
	IC806		TC7W53FU
	Q2006, Q2010, Q2011, Q806		2SA1576A
	Q2002, Q2007-Q2009, Q810-Q812		2SC4081
	Q820, Q821, Q823, Q824		2SD2114K
	Q803, Q805		DTA124EUA
	Q2001, Q2003, Q2005		HN1C01FU
	Q804		UMH1N
	D801, D820, D829		1SS355
	D830, D831		DAN217U
	D816, D819		UDZS5R1(B)

Mark	No.	Description	Part No.
	D802-D815, D822-D826, D828		UMZ6R8N

COILS AND FILTERS

Mark	No.	Description	Part No.
	L2001		LAU3R9J
	L2000		LAU680J
	L801, L802	CHIP BEADS	VTL1087

CAPACITORS

Mark	No.	Description	Part No.
	C846-C849		CCSRCH102J50
	C2012		CCSRCH220J50
	C871, C873		CCSRCH221J50
	C2005, C2009		CCSRCH270J50
	C2051		CCSRCH331J50
	C2092, C2093, C836-C845		CCSRCH471J50
	C2084		CEAT101M10
	C834		CEAT101M16
	C18, C27		CEAT102M6R3
	C2113, C2114		CEAT221M16
	C2001-C2003, C2105		CEAT221M6R3
	C2006		CEAT2R2M50
	C35-C37		CEAT471M6R3
	C60-C63		CEAT4R7M50
	C2089-C2091		CKSRYB104K16
	C2104		CKSRYB221K50
	C2008, C2011, C2102, C2109		CKSRYF104Z25
	C2123-C2125		CKSRYF104Z25
	C2107, C2108		CQMBA103J50

RESISTORS

Mark	No.	Description	Part No.
	R10, R4, R8, R856, R861		RS1/10S0R0J
	R9		RS1/10S0R0J
	R810		RS1/10S561J
	R7, R77-R80, R842, R855		RS1/10S75R0F
	R857, R863		RS1/10S75R0F
	R2012, R2018, R2025		RS1/16S1001F
	R2016		RS1/16S1203F
	R2036		RS1/16S1803F
	R2027		RS1/16S4702F
	R2035		RS1/16S4703F
	R2007, R2022, R2030		RS1/16S6800F
	R2001, R2002, R2015		RS1/16S82R0F
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	JA801, JA802	RGB CONNECTOR	VKB1157
	CN1, CN22	29P FFC CONNECTOR	VKN1260
	X2000 (4.433619MHz)	CRYSTAL	VSS1201

C FJKB ASSY

CAPACITORS

Mark	No.	Description	Part No.
	C7303, C7305		CCSRCH471J50

OTHERS

Mark	No.	Description	Part No.
	KN7301	WRAPPING TERMINAL	VNF1084
	CN7302	12P FFC CONNECTOR	9604S-12C
	CN7301	CONNECTOR	9604S-23C
	JA7301	4P MINIDIN SOCKET(S)	AKP1238
	JA7302	JACK	VKB1208

D FLKY ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC7001		PT6315
	IC7002		RPM7140-H9
	Q7004		2SA1576A
	Q7005		2SC4081
	Q7003		2SC5712
	Q7001		DTC124EUA
	D7004		1SS355
⚠	D7003, D7007		RF101L2S
	D7001		SLR-343BBT
	D7002		SLR-343DC
	D7008		UDZS13(B)
	D7005		UDZS15(B)
	D7006		UDZS2R4(B)
	D7301-D7304		UMZ6R8N

TRANSFORMERS

Mark	No.	Description	Part No.
⚠	T7001		VTT1171

COILS AND FILTERS

Mark	No.	Description	Part No.
	L7001		LAU220J

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S7001-S7010		VSG1024

CAPACITORS

Mark	No.	Description	Part No.
	C7021		CEAL100M50
	C7016, C7027		CEAL101M10
	C7017		CEAL101M16
	C7003, C7004, C7023		CKSRYB103K50
	C7018		CKSRYB223K25
	C7001, C7007, C7014, C7015, C7020		CKSRYF104Z25
	C7026, C7028, C7034		CKSRYF104Z25
	C7008		CKSRYF104Z50

RESISTORS

Mark	No.	Description	Part No.
	R7018		RS1/10S221J
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN7001	12P FFC CONNECTOR	9604S-12C
	J7001	CONNECTOR ASSY	PF03PG-B05
	V7001	FLUORESCENT TUBE	VAW1091

E KEYB ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S7201		VSG1024

OTHERS

Mark	No.	Description	Part No.
	CN7201	CONNECTOR POST	B3B-PH-K

F MAIN ASSY (DVR-640H-AV)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC3101		AK5359ET
	IC501		BD7997FS
	IC2401, IC2402		CEK1285
	IC1201, IC1221	(*) Refer to 7.1.11(P125)	K4H511638C-UCB3
	IC5631		LM3526M-L
	IC2202		MM1501XN
	IC2201		MM1503XN

Mark	No.	Description	Part No.
⚠	IC5621		MM1565AF
	IC1301		NJM12904V
	IC3802		PCA9557PW
	IC3201		PCM1742KE
	IC3707		PST3813U
⚠	IC4512		S-1170B25UC-OTK
⚠	IC4507, IC4511		S-1170B33UC-OTS
⚠	IC4504		S-1170B50UC-OUJ
	IC3103		TC74VHC157FT
	IC3102		TC7SZ126FU
	IC3701		TC7WH34FU
	IC5701		TDOTG242-0F0C8
	IC101		UPC3345GC-YEB-A
	IC3202		UPC4570G2-A
	IC1001		UPD61272F1-107KA3A
	IC1102		VYW2366
	Q1801, Q1811, Q2205, Q2206		2SA1576A
	Q2501-Q2505		2SA1576A
	Q3501, Q4561		2SC4081
	Q101		RT1N141U
	D3201		DAN202U
	D3711, D3712		RB501V-40
	D101		SML-310YT

COILS AND FILTERS

Mark	No.	Description	Part No.
	L1010, L106, L107, L112	CHIP COIL	BTH1103
	L1001, L1003, L1004, L1006-L1008		DTL1106
	L1201, L3102, L5701	EMI FILTER	DTL1106
	L1811		LCYA150J2520
	L1801		LCYA390J2520

CAPACITORS

Mark	No.	Description	Part No.
	C1081		CCSSCH100D50
	C158-C162, C1813		CCSSCH101J50
	C3207, C3211		CCSSCH121J50
	C1902, C1911		CCSSCH150J50
	C1812		CCSSCH151J50
	C1901, C1912		CCSSCH180J50
	C1803		CCSSCH221J50
	C169, C171, C509		CCSSCH390J50
	C3501, C3808-C3810		CCSSCH470J50
	C1084-C1087		CCSSCH5R0C50
	C510		CCSSCH620J50
	C264		CCSSCH680J50
	C5721, C5722		CCSSCK2R0C50
	C3212		CEAT102M6R3
	C1708, C4507		CEVW100M16
	C2506, C3106, C3214, C3216, C4542		CEVW101M16
	C4563, C5624		CEVW101M16
	C1001, C1003, C1005, C1014, C1020		CEVW221M4
	C1071, C1074, C1235, C5701		CEVW221M4
	C511		CKSQYB105K16
	C5623		CKSQYB225K10
	C105, C1073, C1076, C121-C123		CKSQYB475K6R3
	C125, C133, C135, C152, C153		CKSQYB475K6R3
	C155, C165, C168, C178, C181		CKSQYB475K6R3
	C184, C4508, C4525, C4526		CKSQYB475K6R3
	C4548, C4549, C4552, C5725		CKSQYB475K6R3
	C157, C2221, C2222, C4551		CKSRYB105K10
	C109, C111		CKSRYB334K10
	C101, C102, C136		CKSRYB474K10
	C1009, C1015, C1018, C1021, C1024		CKSRYF105Z10

Mark	No.	Description	Part No.
	C1044, C1047, C1052, C1055		CKSRYF105Z10
	C1061, C1062, C1065, C1070, C1113		CKSRYF105Z10
	C1202, C1204, C1208, C1221, C1223		CKSRYF105Z10
	C1227, C1421, C1801, C1811		CKSRYF105Z10
	C2208, C2209, C2501, C296		CKSRYF105Z10
	C3102, C3103, C3107, C3511, C3703		CKSRYF105Z10
	C3738, C3801-C3805, C5621, C5702		CKSRYF105Z10
	C5711-C5720		CKSRYF105Z10
	C1010, C1016, C1019, C1022, C1025		CKSSYB102K50
	C1046, C1049, C1054, C1057, C1059		CKSSYB102K50
	C1064, C1067, C1068, C1207		CKSSYB102K50
	C1209, C1210, C1226, C1228, C1229		CKSSYB102K50
	C151, C189, C261, C4527, C4550		CKSSYB102K50
	C5506, C5622		CKSSYB102K50
	C119, C1205, C1206, C1224, C1225		CKSSYB103K16
	C129, C130, C142, C164, C1709		CKSSYB103K16
	C187, C188, C221, C2223, C2224		CKSSYB103K16
	C3701, C4509		CKSSYB103K16
	C1026, C1029, C103, C1034, C1037		CKSSYB104K10
	C104, C1040, C1043, C112, C117		CKSSYB104K10
	C124, C126-C128, C132		CKSSYB104K10
	C143, C144, C150, C156, C163		CKSSYB104K10
	C167, C172, C175, C2301, C2302		CKSSYB104K10
	C260, C3806, C3815, C3816		CKSSYB104K10
	C504, C505		CKSSYB104K10
	C137		CKSSYB182K50
	C145, C146		CKSSYB222K50
	C224, C230, C231		CKSSYB223K16
	C108, C110, C139, C141, C1802		CKSSYB331K50
	C3204		CKSSYB331K50
	C114		CKSSYB332K50
	C116		CKSSYB333K10
	C232, C233		CKSSYB471K50
	C148, C220, C223		CKSSYB472K25
	C147, C1804, C1814, C532		CKSSYB473K10
	C297, C3208, C3210		CKSSYB681K50
	C138		CKSSYB682K25
	C154, C236		CKSSYB683K10
	C115		CKSSYB822K16
	C1002, C1004, C1007, C1045, C1048		CKSSYF104Z16
	C1050, C1051, C1053, C1056, C1058		CKSSYF104Z16
	C1060, C1063, C1066, C1069, C1082		CKSSYF104Z16
	C1105, C1203, C1211-C1214, C1222		CKSSYF104Z16
	C1230, C1302, C1303, C1312, C1313		CKSSYF104Z16
	C1701-C1707, C2401-C2406, C3101		CKSSYF104Z16
	C3108, C3201-C3203, C3206, C3209		CKSSYF104Z16
	C4561, C4562, C4565, C501, C503		CKSSYF104Z16
	C5512		CKSSYF104Z16
	C113 (2.2/10)		DCG1040
	C502 810/16)		DCH1165
	C1008, C1017, C107, C1075, C118		DCH1201
	C2210, C2217, C5727-C5729 (10/10)		DCH1201
	C1215 (150/4)		VCH1246

RESISTORS

Mark	No.	Description	Part No.
	R501 (0.47/1/4W)		DCN1160
	R502 (0.68/1/4W)		DCN1162
	R3854		RAB4CQ0R0J
	R1411, R240, R3005, R3102, R3707		RAB4CQ103J
	R3801-R3806		RAB4CQ223J

Mark	No.	Description	Part No.
	R1245, R1246, R1255, R1256		RAB4CQ330J
	R1265, R1266, R1273, R1274		RAB4CQ330J
	R3810-R3813, R3824		RAB4CQ330J
	R254		RAB4CQ473J
	R1241, R1242, R1248, R1249		RAB4CQ560J
	R1261, R1262, R1268, R1269		RAB4CQ560J
	R1281-R1283, R1287		RAB4CQ560J
	R3208, R3223		RN1/16SC56R0D
	R3207, R3226		RN1/16SE1502D
	R3209, R3224		RN1/16SE8201D
	R1001, R1002, R133, R2401		RS1/10S0R0J
	R4513, R4514, R4517, R4520-R4524		RS1/10S0R0J
	R4527, R4591-R4593, R5702		RS1/10S0R0J
	R1302, R1303, R1312, R1313		RS1/16S1001F
	R5714		RS1/16S1501F
	R2502, R2505, R2508, R2511, R2514		RS1/16S2000F
	R1301		RS1/16S4700F
	R1052		RS1/16S6200F
	R3505		RS1/16S75R0F
	R1054		RS1/16S9100F
	R181		RS1/16SS4701F
	R510, R511		RS1/4SA2R0J
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN502	4P CONNECTOR	DKN1288
	CN501	D-SOCKET(14P)	DKN1312
	CN601	5P CONNECTOR	DKN1402
	CN101	CONNECTOR	DKN1404
	X201 (16.93MHz)	OSC	DSS1152
	CN1402	07P CONNECTOR	RKN1048
	CN5601	CONNECTOR POST	S10B-PH-K
	CN2401	KR CONNECTOR	S13B-PH-K
	CN2301	35P CONNECTOR	VKN1439
	CN401	CONNECTOR	VKN2029
	CN1401	CONNECTOR	VKN2030
	CN3802	CONNECTOR	VKN2045
	CN3801	CONNECTOR	VKN2050
	X1002 (27MHz)	CRYSTAL	VSS1191
	X1001 (24.576MHz)	CRYSTAL	VSS1192
	X5701 (6MHz)	CRYSTAL	VSS1210

F MAIN ASSY (DVR-540H-S)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC3101		AK5359ET
	IC501		BD7997FS
	IC2401, IC2402		CEK1285
	IC1201, IC1221 (*) Refer to 7.1.11(P125)		K4H511638C-UCB3
	IC1301		NJM12904V
	IC3201		PCM1742KE
	IC3707		PST3813U
⚠	IC4512		S-1170B25UC-OTK
⚠	IC4507, IC4511		S-1170B33UC-OTS
⚠	IC4504		S-1170B50UC-OUJ
	IC3701		TC7WH34FU
	IC101		UPC3345GC-YEB-A
	IC3202		UPC4570G2-A
	IC1001		UPD61272F1-107KA3A
	IC1102		VYW2365
	Q1801, Q1811, Q2205, Q2206		2SA1576A
	Q2501-Q2505		2SA1576A
	Q3501, Q4561		2SC4081
	Q101		RT1N141U
	D3201		DAN202U
	D3711, D3712		RB501V-40
	D101		SML-310YT

COILS AND FILTERS

Mark	No.	Description	Part No.
	L1010, L106, L107, L112	CHIP COIL	BTH1103
	L1001, L1003, L1004, L1006-L1008		DTL1106
	L1201	EMI FILTER	DTL1106
	L1811		LCYA150J2520
	L1801		LCYA390J2520

CAPACITORS

Mark	No.	Description	Part No.
	C1081		CCSSCH100D50
	C158-C162, C1813		CCSSCH101J50
	C3207, C3211		CCSSCH121J50
	C1902, C1911		CCSSCH150J50
	C1812		CCSSCH151J50
	C1901, C1912		CCSSCH180J50
	C1803		CCSSCH221J50
	C169, C171, C509		CCSSCH390J50
	C3501		CCSSCH470J50
	C1084-C1087		CCSSCH5R0C50
	C510		CCSSCH620J50
	C264		CCSSCH680J50
	C3212		CEAT102M6R3
	C1708, C4507		CEVW100M16
	C2506, C3106, C3214, C3216, C4542		CEVW101M16
	C4563		CEVW101M16
	C1001, C1003, C1005, C1014, C1020		CEVW221M4
	C1071, C1074, C1235		CEVW221M4
	C511		CKSQYB105K16
	C105, C1073, C1076, C121-C123		CKSQYB475K6R3
	C125, C133, C135, C152, C153		CKSQYB475K6R3
	C155, C165, C168, C178, C181		CKSQYB475K6R3
	C184, C4508, C4525, C4526		CKSQYB475K6R3
	C4548, C4549, C4552		CKSQYB475K6R3
	C157, C4551		CKSRYB105K10
	C109, C111		CKSRYB334K10
	C101, C102, C136		CKSRYB474K10
	C1009, C1015, C1018, C1021, C1024		CKSRYF105Z10
	C1044, C1047, C1052, C1055		CKSRYF105Z10
	C1061, C1062, C1065, C1070, C1113		CKSRYF105Z10
	C1202, C1204, C1208, C1221, C1223		CKSRYF105Z10
	C1227, C1421, C1801, C1811		CKSRYF105Z10
	C2208, C2209, C2501, C296		CKSRYF105Z10
	C3102, C3103, C3511, C3703, C3738		CKSRYF105Z10
	C3801-C3805		CKSRYF105Z10
	C1010, C1016, C1019, C1022, C1025		CKSSYB102K50
	C1046, C1049, C1054, C1057, C1059		CKSSYB102K50
	C1064, C1067, C1068, C1207		CKSSYB102K50
	C1209, C1210, C1226, C1228, C1229		CKSSYB102K50
	C151, C189, C261, C4527, C4550		CKSSYB102K50
	C119, C1205, C1206, C1224, C1225		CKSSYB103K16
	C129, C130, C142, C164, C1709		CKSSYB103K16
	C187, C188, C221, C3701, C4509		CKSSYB103K16
	C1026, C1029, C103, C1034, C1037		CKSSYB104K10
	C104, C1040, C1043, C112, C117		CKSSYB104K10

Mark	No.	Description	Part No.
	C124, C126-C128, C132		CKSSYB104K10
	C143, C144, C150, C156, C163		CKSSYB104K10
	C167, C172, C175, C2301, C2302		CKSSYB104K10
	C260, C3806, C504, C505		CKSSYB104K10
	C137		CKSSYB182K50
	C145, C146		CKSSYB222K50
	C224, C230, C231		CKSSYB223K16
	C108, C110, C139, C141, C1802		CKSSYB331K50
	C3204		CKSSYB331K50
	C114		CKSSYB332K50
	C116		CKSSYB333K10
	C232, C233		CKSSYB471K50
	C148, C220, C223		CKSSYB472K25
	C147, C1804, C1814, C532		CKSSYB473K10
	C297, C3208, C3210		CKSSYB681K50
	C138		CKSSYB682K25
	C154, C236		CKSSYB683K10
	C115		CKSSYB822K16
	C1002, C1004, C1007, C1045, C1048		CKSSYF104Z16
	C1050, C1051, C1053, C1056, C1058		CKSSYF104Z16
	C1060, C1063, C1066, C1069, C1082		CKSSYF104Z16
	C1105, C1203, C1211-C1214, C1222		CKSSYF104Z16
	C1230, C1302, C1303, C1312, C1313		CKSSYF104Z16
	C1701-C1707, C2401-C2406, C3101		CKSSYF104Z16
	C3201-C3203, C3206, C3209		CKSSYF104Z16
	C4561, C4562, C4565, C501, C503		CKSSYF104Z16
	C113 (2.2/10)		DCG1040
	C502 (10/16)		DCH1165
	C1008, C1017, C107, C1075, C118		DCH1201
	C2210, C2217 (10/10)		DCH1201
	C1215 (150/4)		VCH1246

RESISTORS

Mark	No.	Description	Part No.
	R501 (0.47/1/4W)		DCN1160
	R502 (0.68/1/4W)		DCN1162
	R1411, R240, R3005, R3102, R3707		RAB4CQ103J
	R3801-R3806		RAB4CQ223J
	R1245, R1246, R1255, R1256		RAB4CQ330J
	R1265, R1266, R1273, R1274		RAB4CQ330J
	R3810-R3813, R3824		RAB4CQ330J
	R254		RAB4CQ473J
	R1241, R1242, R1248, R1249		RAB4CQ560J
	R1261, R1262, R1268, R1269		RAB4CQ560J
	R1281-R1283, R1287		RAB4CQ560J
	R3208, R3223		RN1/16SC56R0D
	R3207, R3226		RN1/16SE1502D
	R3209, R3224		RN1/16SE8201D
	R1001, R1002, R133, R2401		RS1/10S0R0J
	R4513, R4514, R4520-R4524, R4527		RS1/10S0R0J
	R4591-R4593		RS1/10S0R0J
	R1302, R1303, R1312, R1313		RS1/16S1001F
	R2502, R2505, R2508, R2511, R2514		RS1/16S2000F
	R1301		RS1/16S4700F
	R1052		RS1/16S6200F
	R3505		RS1/16S75R0F
	R1054		RS1/16S9100F
	R181		RS1/16SS4701F
	R510, R511		RS1/4SA2R0J
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN502	4P CONNECTOR	DKN1288
	CN501	CONNECTOR	DKN1312
	CN601	5P CONNECTOR	DKN1402
	CN101	CONNECTOR	DKN1404
	X201	(16.93MHz) OSC	DSS1152
	CN1402	07P CONNECTOR	RKN1048
	CN2401	KR CONNECTOR	S13B-PH-K
	CN2301	35P CONNECTOR	VKN1439
	CN401	CONNECTOR	VKN2029
	CN1401	CONNECTOR	VKN2030
	CN2601	CONNECTOR	VKN2038
	CN3801	CONNECTOR	VKN2050
	X1002	(27MHz) CRYSTAL	VSS1191
	X1001	(24.576MHz) CRYSTAL	VSS1192

G DVJB ASSY (DVR-640H-AV Only)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC101		ADV7172KSTZ
	IC103		HY57V161610ETP-8
	IC105, IC107		NJU7013F
⚠	IC106		S-1170B25UC-OTK
	IC104		TC7WHU04FU
	IC108		UPD72852AGB-8EU-A
	IC102		UPD72893BF1-FN3
	Q101-Q104		2SA1576A
	D101		HVC359
	D102		HVC362

COILS AND FILTERS

Mark	No.	Description	Part No.
	F101	CHIP COIL	DTF1069
	L106, L107	EMI FILTER	DTL1106
	L101, L102		LCYA100J2520
	L109, L111		LCYA150J2520
	L108, L110		LCYA180J2520
	L104, L105	COIL	VTH1043

CAPACITORS

Mark	No.	Description	Part No.
	C200, C218		CCSRCH100D50
	C258		CCSRCH271J50
	C211, C213		CCSRCH330J50
	C212		CCSRCH5R0C50
	C254, C255		CCSRCH8R0D50
	C107, C112		CCSSCH330J50
	C161-C163		CCSSCH470J50
	C103, C108		CCSSCH680J50
	C104, C109		CCSSCH7R0D50
	C106, C111		CCSSCH820J50
	C105, C110		CCSSCJ3R0C50
	C144, C220, C223		CEVW221M4
	C101, C102, C122, C126, C140		CKSQYF106Z10
	C142, C147, C204, C207, C214		CKSQYF106Z10
	C230, C233, C248, C252		CKSQYF106Z10
	C222		CKSQYF475Z10
	C201, C205		CKSRYB104K16
	C203, C210, C245, C249, C250		CKSRYF104Z25
	C124, C127-C135, C141, C143		CKSRYF105Z10
	C146, C148-C160, C206, C215		CKSRYF105Z10
	C231, C240, C241, C243, C244		CKSRYF105Z10
	C246, C247, C251, C253		CKSRYF105Z10
	C256, C257		CKSRYF105Z10

Mark	No.	Description	Part No.
	C216		CKSRYF473Z25
	C145, C235		CKSSYB103K16
	C113-C117, C123, C125, C136		CKSSYF104Z16
	C232, C234, C237, C242		CKSSYF104Z16
	C259-C261		CKSSYF104Z16

RESISTORS

Mark	No.	Description	Part No.
	R144-R149, R155-R158		RAB4CQ103J
	R169-R172, R185-R188		RAB4CQ103J
	R150, R151		RAB4CQ470J
	R248		RN1/16SE9101D
	R141, R197, R198, R211, R215		RS1/10S0R0J
	R105, R111		RS1/16S1500F
	R268		RS1/16S5101F
	R264-R267		RS1/16S56R0D
	R135		RS1/16S6800F
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	JA101	1394-TERMINAL	VKN2028
	CN101	CONNECTOR	VKN2045
	X102	(24.576MHz) CRYSTAL	VSS1184
	X101	(27.000MHz) VCXO	VSS1195

H USBB ASSY (DVR-640H-AV Only)

COILS AND FILTERS

Mark	No.	Description	Part No.
	L105, L106	COIL	VTH1054
	L101-L104	CHIP FERRITE BEAD	VTL1169

CAPACITORS

Mark	No.	Description	Part No.
	C102		CEVW221M6R3
	C101		CKSRYF104Z25

RESISTORS

Mark	No.	Description	Part No.
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN101	CONNECTOR	B10B-PH-K
	JA101	USB CONNECTOR	VKB1226
	JA102	USB CONNECTOR	VKB1227

I ATAB ASSY

RESISTORS

Mark	No.	Description	Part No.
	R13-R20		RAB4C0R0J

OTHERS

Mark	No.	Description	Part No.
	CN12	40P ATA CONECTOR	VKN1816
	CN11	40P CONNECTOR	VKN1818

J POWER SUPPLY UNIT

POWER SUPPLY UNIT has no service part.

6. ADJUSTMENT

[Purpose]

If the combination of MAIN Assy and LOADER Assy is changed, the adjusted value for LD power will be shifted, and stable playback or recording of a disc will become impossible.
Therefore, when the combination of MAIN Assy and LOADER Assy is changed, LD power adjustment and adjustment for disc judgment will be necessary.
Be sure to do this adjustment at following cases.

- When replacing MAIN Assy
- When replacing LOADER Assy

[Tools to be used]

- Special tool for adjusting the LD power (GGF1559)
- 10-pin FFC flexible cable (GGD1477)
- CD-ROM test disc: CDT-313 (GGV1054)
- DVD dual-layer test disc: DVDT-002 (GGV1036)

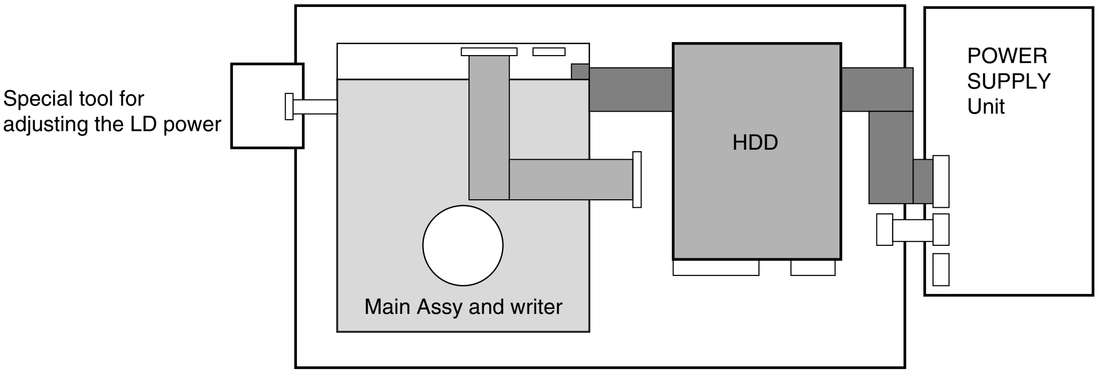
[Notes]

Never turn the power off while any of the following operations is in progress:

- While laser diode (LD) power adjustment is being performed normally by the unit
- While adjustment for disc judgment is being performed

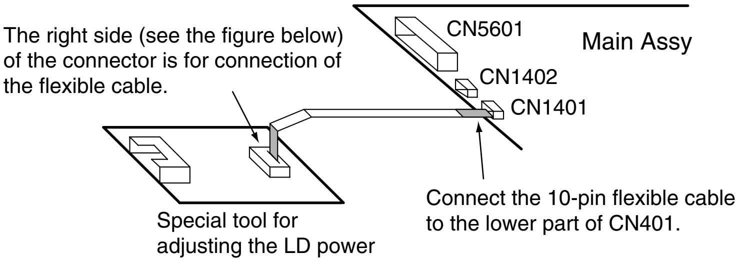
[Connections]

- Connections for adjusting the LD power

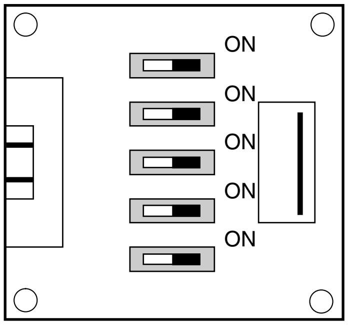

Special tool for adjusting the LD power
HDD
POWER SUPPLY Unit
Main Assy and writer

Note: Before adjusting the LD power, disconnect the power to the HDD and the flexible cable for ATA (40-pin).

- To which the special tool for adjusting the LD power is connected


The right side (see the figure below) of the connector is for connection of the flexible cable.
CN5601
Main Assy
CN1402
CN1401
Special tool for adjusting the LD power
Connect the 10-pin flexible cable to the lower part of CN401.

- Setting of the switches on the special tool for adjusting the LD power


ON
ON
ON
ON
ON

Set all five switches to ON.

[Procedures]

1. Connect the special tool for adjusting the LD power, as shown on the previous page.

2. Turn on the DVD recorder. ("POWER ON" will be indicated on the FL display.)

3. The tray opens.
   Make sure that powered opening of the tray is working.
   If the tray does not open under power:
   - a. Flexible cables or other cables may not be connected. (Connection of cables to the HDD is not necessary.)
   - b. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.
   - c. Failure in the loader, MAIN Assy, or POWER SUPPLY Unit is suspected.

   Make sure that the LED next to CN401 is lit.
   If the LED flashes:
   - a. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.

4. Manually close the tray. Adjust the LD power.
   Make sure that the LED next to CN401 is lit.
   If the LED flashes three or four times in a burst:
   - a. The PU flexible cable may not be connected.
   - b. Failure in the Traverse Mechanism or MAIN Assy is suspected.

5. After adjusting the LD power, invoke powered opening of the tray.
   Make sure that the LED next to CN401 flashes once per burst.

6. Load the DVDT-002 on the tray.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

7. After adjustment for judging the DVD disc, the tray automatically opens.
   Make sure that the LED next to CN401 flashes twice in a burst.
   If the LED flashes only once per burst:
   - a. A disc other than the DVDT-002 may be loaded. Be sure to load the DVDT-002.

8. Replace the DVDT-002 with the CDT-313.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

9. After adjustment for judging the CD disc, the tray automatically opens.
   Make sure that the LED next to CN401 is unlit.
   If the LED flashes twice in a burst:
   - a. A disc other than the CDT-313 may be loaded. Be sure to load the CDT-313.

10. Unload the CDT-313 and manually close the tray.

11. Turn off the recorder by holding the POWER button pressed for several seconds.

12. Disconnect the 10-pin FFC cable from the MAIN Assy.

13. Set the power sources for the HDD and the flexible connecting cable for ATA (40-pin) to their original statuses.

[Points to be confirmed]

1. Make sure that real-time recording on a DVD-R/-RW/RAM will finish normally.
2. Play back a recorded disc and make sure that playback is performed without a problem.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

◆ Jigs and Tools to be used

Remote control unit for serving (GGF1381)
DVD Recorder Data Disc (Type 2)(*)
Download disc
Test disc (GGV1025)
DVD-RW (Commercial goods)

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

◆ Service Mode List

1. Setting type

Item	When to perform
7.1.1 Model setting	• When replacing MAIN ASSY or TUJB ASSY.
7.1.2 CPRM ID number and data	• When "CPRM ERROR" is displayed on the display screen. • After the MAIN ASSY or HDD replaced.
7.1.3 Firmware downloading method	• After model setting (After replacing MAIN ASSY, TUJB ASSY). • After the HDD is replaced. • When NG is displayed for the version infomation in Service mode.
7.1.4 Video Adjustment for Specific Area	• When a flicker appears on the tuner display like a horizontal or vertial out-of-sync symptom
7.1.5 (4) OSD Filter Setting	• When a character flicker appears on the OSD depending on the monitor.

2. Diagnosis type

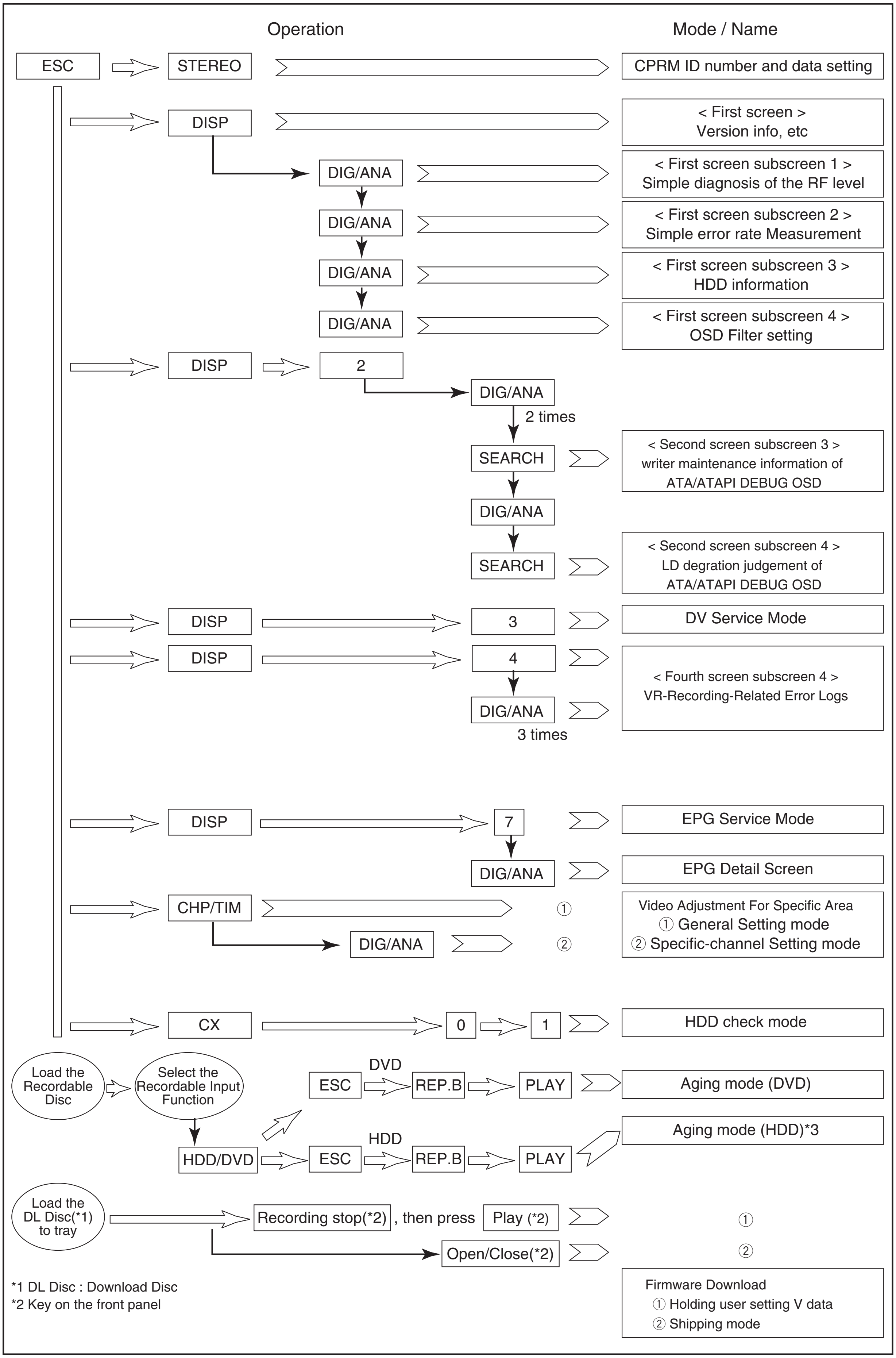
7.1.5 Service Mode First screen : Version, Simple diagnosis of the RF level, Simple error rate measurement, HDD information. Second screen : ATA/ATAPI debug screen, LD degration judgement Fourth screen : VR-recording-related error loss	• When confirming version infomation • When confirming the state of DRIVE Assy.
7.1.6 DV Service Mode (DVR-640H-AV only)	When any failures occurs while a DV device connected
7.1.7 EPG Service Mode	When EPG data cannnot be or can be only partially obtained.
7.1.8 Aging Mode	When a claimed sympton is difficult to reproduce.
7.1.9 HDD Check Mode	When checking the quality of HDD.

◆ Necessary procedure List when replacing Assys

Following is the surely necessary procedures and the produet state after changing when replacing next ASSYs.

Replaced ASSY	Necessary setting	State after replacing	
		User setting	HDD contents
MAIN ASSY TUJB ASSY	1. Model setting 2. LD power adjustment 3. CPRM setting 4. Firmwave download	×	○
HDD	1. CPRM setting 2. Firmwave download	○	×

◆ SERVICE MODE MAP


Operation
Mode / Name
ESC
STEREO
CPRM ID number and data setting
DISP
< First screen >
Version info, etc
DIG/ANA
< First screen subscreen 1 >
Simple diagnosis of the RF level
DIG/ANA
< First screen subscreen 2 >
Simple error rate Measurement
DIG/ANA
< First screen subscreen 3 >
HDD information
DIG/ANA
< First screen subscreen 4 >
OSD Filter setting
DISP
2
DIG/ANA
2 times
SEARCH
< Second screen subscreen 3 >
writer maintenance information of
ATA/ATAPI DEBUG OSD
DIG/ANA
SEARCH
< Second screen subscreen 4 >
LD degration judgement of
ATA/ATAPI DEBUG OSD
DISP
3
DV Service Mode
DISP
4
DIG/ANA
3 times
< Fourth screen subscreen 4 >
VR-Recording-Related Error Logs
DISP
7
EPG Service Mode
DIG/ANA
EPG Detail Screen
CHP/TIM
①
DIG/ANA
②
Video Adjustment For Specific Area
① General Setting mode
② Specific-channel Setting mode
CX
0
1
HDD check mode
Load the Recordable Disc
Select the Recordable Input Function
DVD
ESC
REP.B
PLAY
Aging mode (DVD)
HDD/DVD
HDD
ESC
REP.B
PLAY
Aging mode (HDD)*3
Load the DL Disc(*1) to tray
Recording stop(*2)
, then press
Play (*2)
①
Open/Close(*2)
②
Firmware Download
① Holding user setting V data
② Shipping mode

*1 DL Disc : Download Disc
*2 Key on the front panel

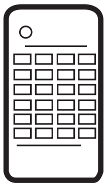
7.1.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or TUJB Assy that are(is) commonly used with another model are(is) replaced, they(it) must recognize the model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[Notes]

- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- As this setting resets the Assy(s) in question to the factory-preset status, it is recommended that you obtain the customer's consent beforehand.

[Procedures]

① After power on, the following screen is displayed on TV monitor. Press four digits properly (for example " 0202 ") by using the remote control unit for service, according to the screen information.

[DVR-640H-AV model]

```
[Recorder's Model Setting]
  Input the number using the remote for Service.

 > - - -
    Input No.      Model
    [  0302   :   DVR-640H/WY ]
```

[DVR-540H/DVR-440H series model]

```
[Recorder's Model Setting]
  Input the number using the remote for Service.

 > - - -
    Input No.      Model
     [  0202   :   DVR-540H/WY ]
     [  0203   :   DVR-540H/WV ]
     [  0602   :   DVR-440H/WY ]
     [  0204   :   DVR-540H/WY/RE ]
     [  0604   :   DVR-440H/WY/RE ]
     [  0403   :   DVR-440H/WV ]
```

② Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

③ Reset the recorder to all its factory settings.
(Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

④ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm each Model Name (for example " DVR-540H/WY ").

```
DVR-540H/WY          VERSION  :  1.**
  SYSCON    :  RELEASE_100
               Rev     :1.1000
TUNERCON    :  198.000                   OK
    DRIVE   :  DVD-RW DVR-L11X           OK
               1.00                      OK

      HDD   :  WDC WD1600BB-xxGUCx       160

   IRCON    :  1.00                      OK

   DEVICE   :  E2R-FE  1.2     FLASH  :  64M
   REGION   :  2              C  :  *********
```

⑤ End

7.1.2 CPRM ID NUMBER AND DATA SETTING

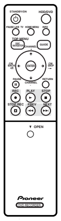
[Purposes]

For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with residual quantity 0:00 or operations in the future may not be guaranteed with RW disc. You will find the ID number to be set on the ID label on the rear panel.

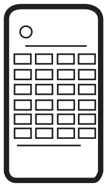
The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY or the HDD is exchanged.

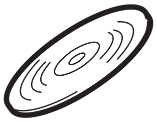
[Tools to be used]



Remote control unit supplied with the unit (VXX3129)



Remote control unit for servicing (GGF1381)



DVD Recorder Data Disc (Type 2)

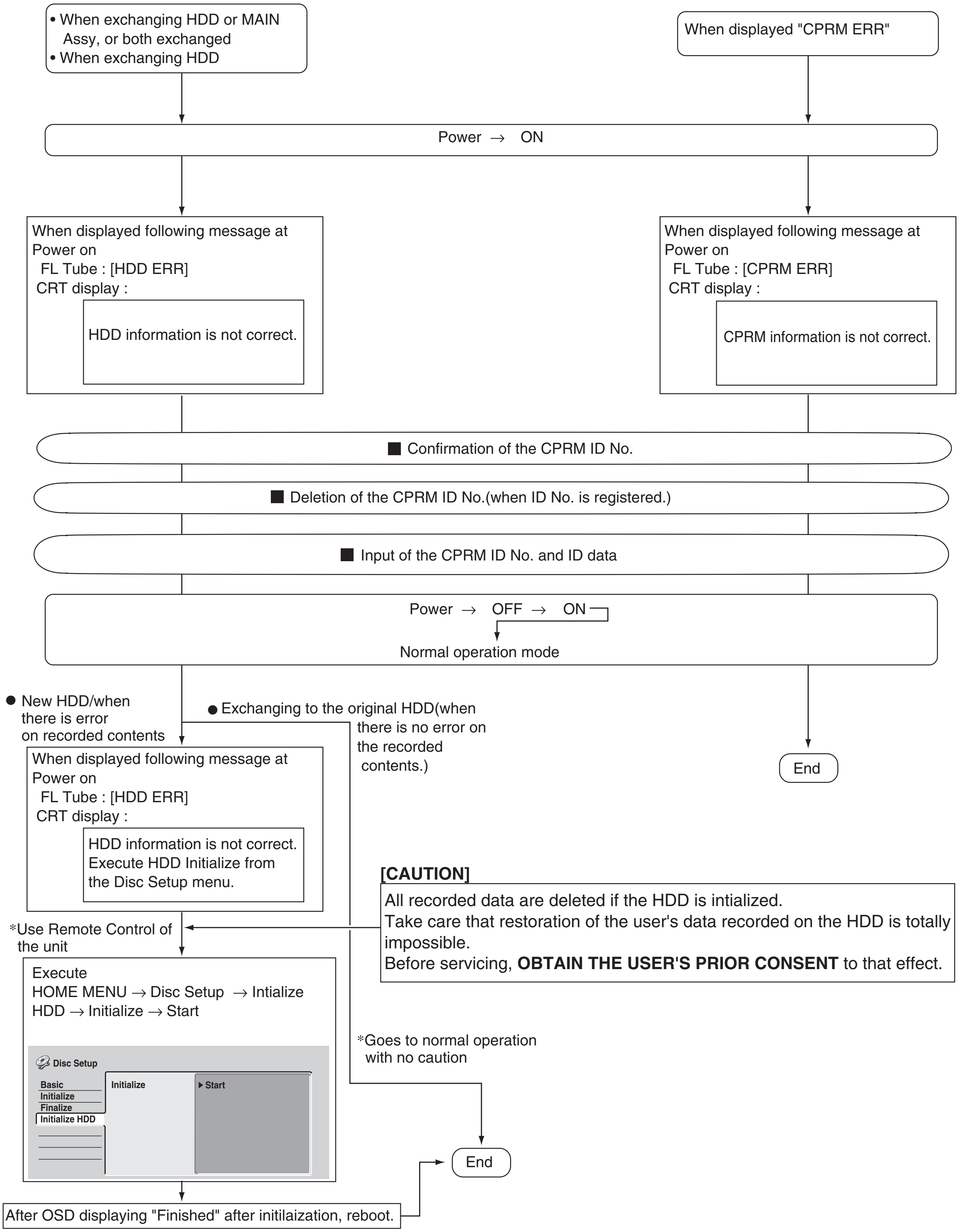
Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

[Notes]

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the data disc (Type 2), the disc will automatically be unloaded.

Input Flow of the ID No. and ID data when exchanging HDD or MAIN Assy



- When exchanging HDD or MAIN Assy, or both exchanged
- When exchanging HDD

When displayed "CPRM ERR"

Power → ON

When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.

When displayed following message at Power on
FL Tube : [CPRM ERR]
CRT display :
CPRM information is not correct.

■ Confirmation of the CPRM ID No.

■ Deletion of the CPRM ID No.(when ID No. is registered.)

■ Input of the CPRM ID No. and ID data

Power → OFF → ON
Normal operation mode

● New HDD/when there is error on recorded contents

● Exchanging to the original HDD(when there is no error on the recorded contents.)

End

When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.
Execute HDD Initialize from the Disc Setup menu.

[CAUTION]

All recorded data are deleted if the HDD is intialized.
Take care that restoration of the user's data recorded on the HDD is totally impossible.
Before servicing, **OBTAIN THE USER'S PRIOR CONSENT** to that effect.

*Use Remote Control of the unit

Execute
HOME MENU → Disc Setup → Intialize HDD → Initialize → Start

*Goes to normal operation with no caution

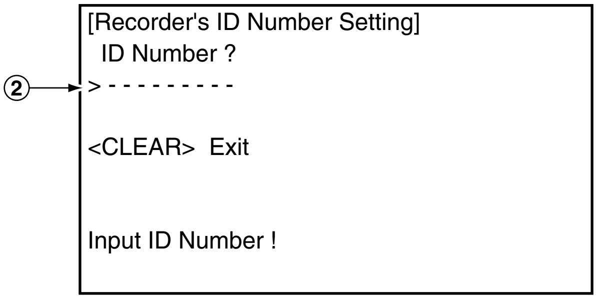
End

After OSD displaying "Finished" after initilaization, reboot.

How to Input the ID Number and ID Data

① To enter the input mode, press ESC+STEREO keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)

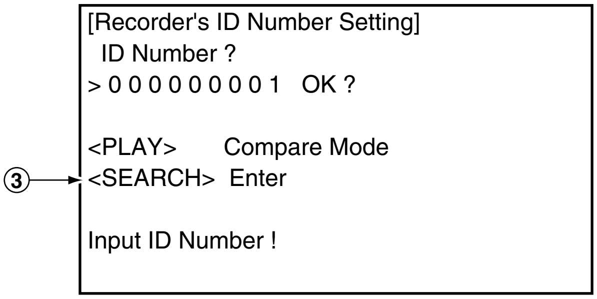


[Recorder's ID Number Setting]
ID Number ?
> - - - - - - - - -

<CLEAR> Exit

Input ID Number !

③ After inputting the number, press SEARCH keys to register the ID number.

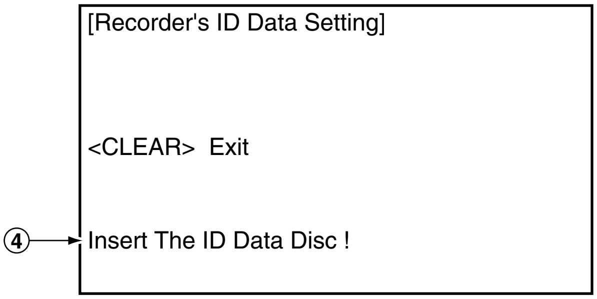


[Recorder's ID Number Setting]
ID Number ?
> 0 0 0 0 0 0 0 0 1 OK ?

<PLAY> Compare Mode
<SEARCH> Enter

Input ID Number !

④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/▲" on the player.

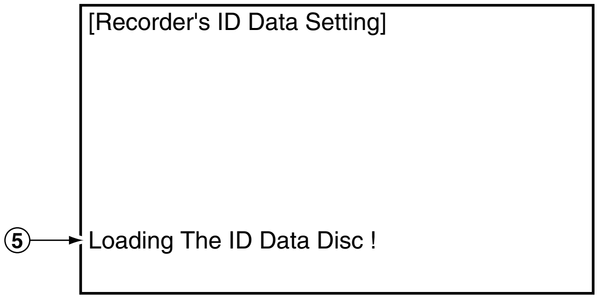


[Recorder's ID Data Setting]

<CLEAR> Exit

Insert The ID Data Disc !

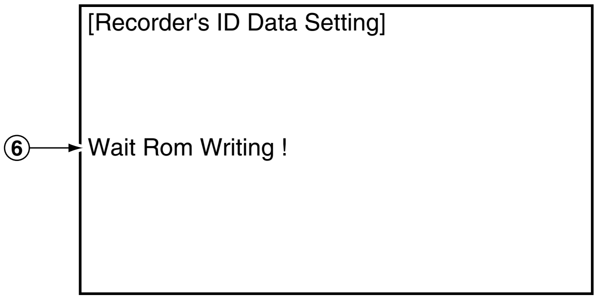
⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")



[Recorder's ID Data Setting]

Loading The ID Data Disc !

⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")

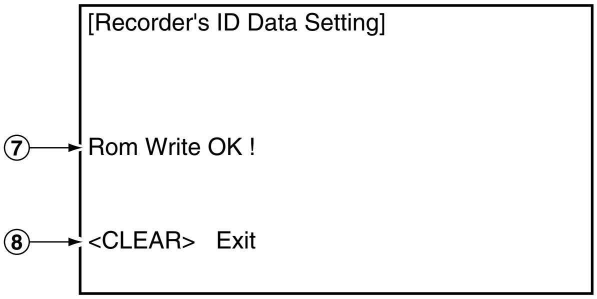


[Recorder's ID Data Setting]

Wait Rom Writing !

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID OK.")

⑧ After confirming this message, press CLEAR key to exit the input mode.



[Recorder's ID Data Setting]

Rom Write OK !

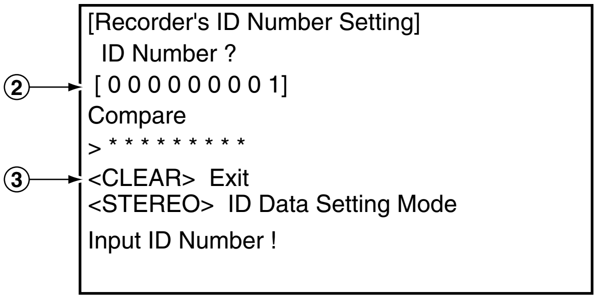
<CLEAR> Exit

[How to Confirm the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR key.

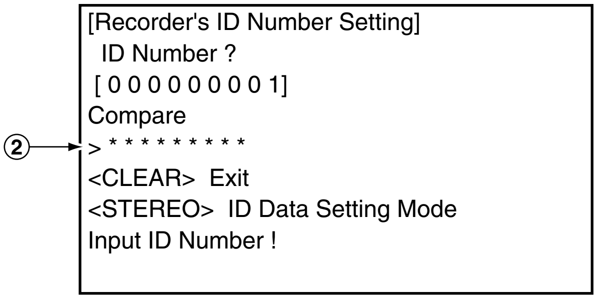


```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

[How to Clear the ID Number]

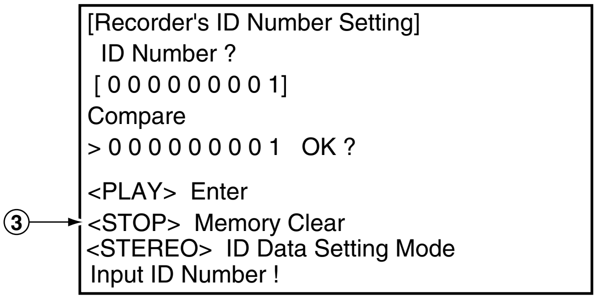
① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

③ After inputting the number, press STOP key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(STOP key is not accepted until 9 digits are entered.)



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1   OK ?
<PLAY>  Enter
<STOP>  Memory Clear
<STEREO>  ID Data Setting Mode
Input ID Number !
```

7.1.3 FIRMWARE DOWNLOADING METHOD

[Purposes]

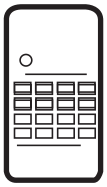
1. When the main board is replaced, the firmware versions for the system control computer, drive, IR microcomputer and the TUFL microcomputer do not match, and operations of the unit may be destabilized.
   To match the versions for the above four, firmware downloading is necessary in the following two cases:
   ① After the model setting
   ② When NG is displayed on the first screen (version information, etc.) of Service mode
   ③ After changing MAIN Assy or TUJB Assy

2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

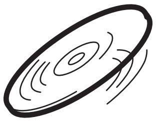
There are the following two methods for downloading: disc download and serial download

1. DISC DOWNLOAD

[Tools to be used]



Remote control unit
for servicing
(GGF1381)



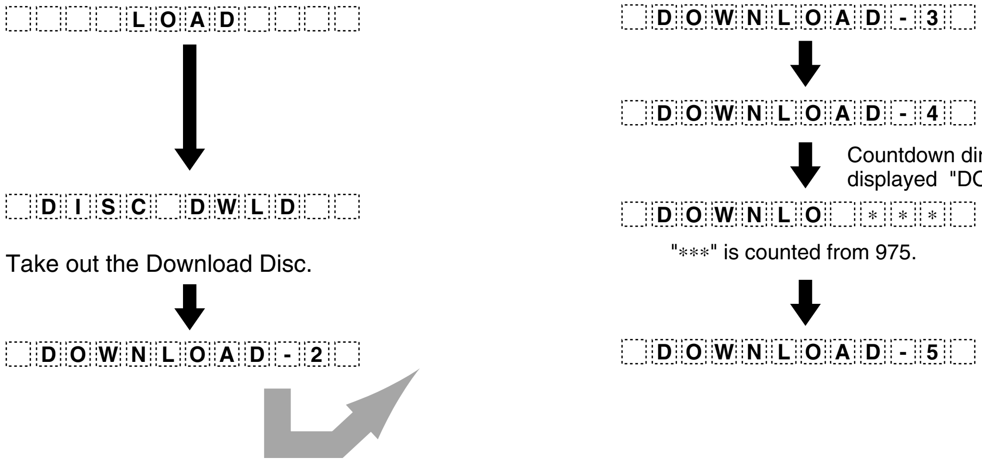
Download DISC

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUNERCON, DRIVE and IR Blaster programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.
② Put the download disc on the tray. Press a " Record Stop " button while pressing a "PLAY" button on the frontpanel.
* The disc tray closes automatically and the disc is loaded.
* The disc tray opens automatically after loading.

FL display



③ Take out the Download Disc.

Countdown directly after displayed "DOWNLOAD-4."

"***" is counted from 975.

* After download is completed, the power turns off, and turns on and a disc tray closes automatically.
* It takes for about 7-8 minutes until download is completed.

④ Press and hold a " ESC " button, then press " DISP " button on the remote control unit for servicing.
⑤ Confirm a firmware release version.
⑥ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

(1) If the power is not correctly turned on or when the power is shut off during downloading, proceed as follows before performing download again:

- In a case where downloading was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
  The SYSCON program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN ASSY.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display:
  The DRIVE program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN Assy.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-4" was displayed on the FL display
  The program for the tuner microcomputer will not function correctly.
  If the program cannot be downloaded from the disc, replace the TUNERCON microcomputer (IC101 : TUJB ASSY).

- In a case where downloading was incorrectly terminated while "DOWNLOAD-5" was displayed on the FL display
  The program for the IR Blaster microcomputer will not function correctly.
  If the program cannot be downloaded from the disc, replace the IR Blaster microcomputer (IC801 : TUJB ASSY).

(2) The setting way to shipping mode (Reference)
At ② lines of the [Procedures], press "OPEN/CLOSE" button while pressing REC STOP button.

2. SERIAL DOWNLOAD

[Purposes]

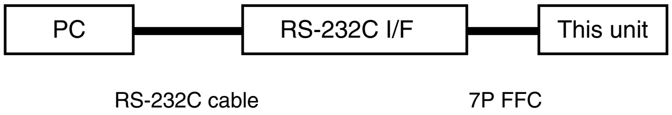
1. When the main board is replaced, the firmware versions for the system control computer, drive, and the TUFL microcomputer do not match, and operations of the unit may be destabilized. In such a case, the versions for the above three must be matched.
2. This method is used when disc downloading fails.

[Tools to be used]

- * PC with serial port
- * RS-232C straight cable
- * RS-232C I/F jig (GGF1348)
- * 7P FFC (VDA1681)
- * Download program (UFU.exe)
- * Firmware

[Connection]

Connect as follows:



[Procedures]

① Connect the 232C I/F jigs above way.

② Turn on the PC and start the " UFU.exe ".

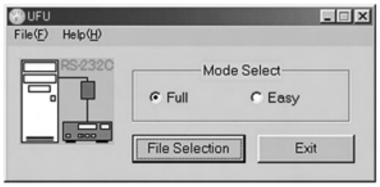
③ Select the Firmware file. ("sz0" file)

④ Turn the DVD recorder on and start the download program.
" Target Device is connected " is appeared on the screen.

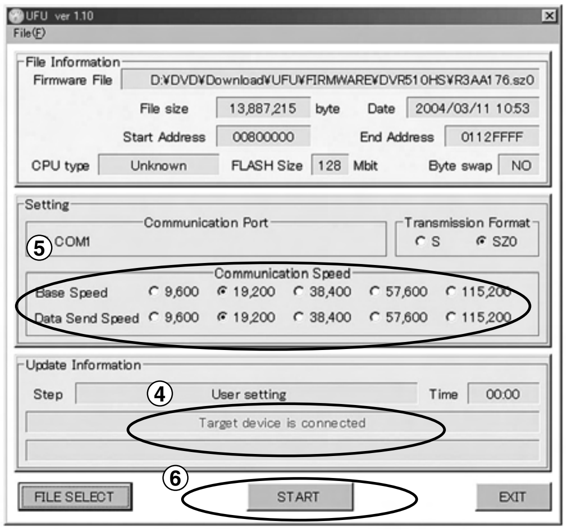
⑤ Select the Communication Speed (Baud Rate)
a) Base Speed 115,200
b) Data Send Speed 115,200

⑥ START
- Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail.
  In this case, please click "START" again.
- Other factors can be considerd if download fails 3 times or more.
- And it takes about 20 minutes for updating the firmware.

* TUNERCON and IR con program is not downloaded this way, so do disc-download for TUNERCON and IR con.



Mode Select: ● Full ○ Easy



File Information
Firmware File: D:¥DVD¥Download¥UFU¥FIRMWARE¥DVR510HS¥R3AA176.sz0
File size: 13,887,215 byte
Date: 2004/03/11 10:53
Start Address: 00800000
End Address: 0112FFFF
CPU type: Unknown
FLASH Size: 128 Mbit
Byte swap: NO

Setting
Communication Port: COM1
Transmission Format: ○ S ● SZ0
Communication Speed
Base Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200
Data Send Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

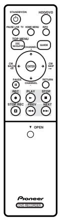
Update Information
Step: User setting
Time: 00:00
Target device is connected

7.1.4 VIDEO ADJUSTMENT FOR SPECIFIC AREA

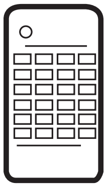
[Purposes]

Depending on the area, if a flicker may appear in a picture received by the tuner, it can be corrected or reduced with this setting.

[Tools to be used]



Remote control unit supplied with the unit (VXX3129)



Remote control unit for servicing (GGF1381)

1. Specific-Channel Setting mode

In this mode, specific settings can be made for up to 12 channels.
For channels that do not have specific settings, the settings of General Setting mode are applied.

[How to enter this mode]

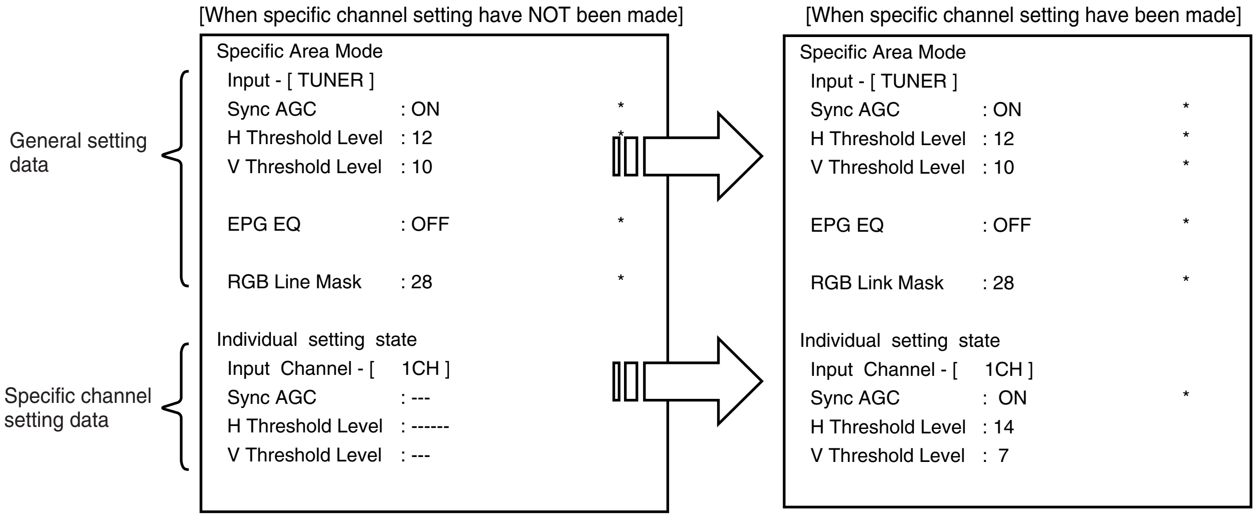
① Select a channel or line input (L1-L3) on which a specific setting is to be made.
② Press the ESC then CHP/TIM keys on the remote control unit for servicing. "General Setting mode" is displayed.
③ Press the DIG/ANA key in General Setting mode. Specific-Channel Setting mode is entered.

[How to exit] Press the ESC key on the remote control unit for servicing to return the Normal mode.

[Note] Setting is in effect only during recording/playback stop.

[Setting examples]

The setting examples in Specific-Channel Setting mode are shown below.
For details on each setting item, see "Table 1: Key operations in Specific-Area Setting mode."



[When specific channel setting have NOT been made]

```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC          : ON        *
 H Threshold Level  : 12        *
 V Threshold Level  : 10

 EPG EQ            : OFF       *

 RGB Line Mask     : 28        *

Individual  setting  state
 Input  Channel - [    1CH ]
 Sync AGC          : ---
 H Threshold Level  : ------
 V Threshold Level  : ---
```

[When specific channel setting have been made]

```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC          : ON        *
 H Threshold Level  : 12        *
 V Threshold Level  : 10        *

 EPG EQ            : OFF       *

 RGB Link Mask     : 28        *

Individual  setting  state
 Input  Channel - [    1CH ]
 Sync AGC          :  ON       *
 H Threshold Level  : 14
 V Threshold Level  :  7
```

[Tips]

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (- -).
- If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The setting indicated with an asterisk (*) is the default.
- The channels to be indicated for "Input Channel" are as shown below:
  Line inputs: L1-L3, DV (DV is not valid for specific-area settings.)
  Tuner channels: Channels received by the tuner (channels to be set in Specific-Channel Setting mode, etc.)

[Tips]

- Indication when the maximum number (12) of channels have individual settings
  If a channel that does not have specific settings is currently selected, the indication will be as shown below, and individual data items cannot be set for that channel. To set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON        *
  H Threshold Level : 12        *
  V Threshold Level : 10        *

  EPG EQ            : OFF       *

  RGB Line Mask     : 28        *

Individual  setting  state
  Sorry !
  You can store only 12 channels
  for Specific Area mode.
```

[H Threshold Level]
The slice level setting for the horizontal(H)-sync separation circuit can be changed. By your changing the slice level, horizontal sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[V Threshold Level]
The slice level setting for the vertical(V)-sync separation circuit can be changed. By your changing the slice level, vertical sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[Receiver sensitivity setting for an electronic program guide (EPG)]
The sensitivity when receiving an electronic program guide can be selected. Set the sensitivity to "High" only if reception is unstable.

2. General Setting mode

[How to enter this mode]

- To shift from Specific-Channel Setting mode:
  Each time the DIG/ANA key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.

- To shift from Normal mode (recording/playback stop):
  Press the ESC then CHP/TIM keys.

[How to exit] Press the ESC key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 1 (key operations in specific-area setting mode).

[General Setting mode screen]

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON        *
  H ThresholdLevel  : 12        *
  V Threshold Level : 10        *

 EPG EQ             : OFF       *

 RGB Line Mask      : 28        *
```

*: Setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON        *
  H ThresholdLevel  : 12        *
  V Threshold Level : 10        *

  EPG EQ            : OFF       *

  RGB Line Mask     : 28        *

This channel is set up
  individually.
```

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 1: key operations in specific-Area setting mode (1/2)
Key operations in Specific Area Setting mode of the remote control units are shown in the table below
(the keys are of the remote control unit for servicing unless otherwise stated):

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[DIG/ANA]	Switches General setting mode and Specific setting mode.	–	–	○	○
[INPUT SELECT], [CHANNEL +/-] (Remote control unit supplied with this unit)	Switches inputs or channels.	–	–	○	○
[SIDE A], [SIDE B]	Sets SyncAGC.	ON(*) / OFF	ON : The sync level is set to an appropriate value. OFF : Cancel the Sync AGC.	○	○
[Rev ×3], [×3 Fwd]	Sets H Threshold.	0 – 15 (Default : 12)	[Rev ×3] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [×3 Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets V Threshold Level.	0 – 15 (Default : 10)	[Rev CHAPTER SKIP] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [CHAPTER SKIP Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○

Table 1: key operations in specific-Area setting mode (2/2)

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[<<|| STILL STEP], [STILL STEP ||>>]	Sets Line Mask setting at RGB signal is inputted.	22 - 40 (Default: 28)	[<<|| STILL STEP] : Decreasing 1 by 1 in the range 22 to 40. (Cyclic operation) [STILL STEP ||>>] : Increasing 1 by 1 in the range 22 to 40. (Cyclic operation)	×	○
[PLAY]	All channels that have specific setting data will be canceled, and the specific data will be initialized.	–	The General Setting data will not be changed.	○	×
[CLEAR]	Specific-Channel Setting mode: If the currently selected channel has its specific setting, that setting will be canceled. (By canceling the specific setting for that channel, the number of remaining channels that can have specific settings will be increased by one.) General Setting mode: Settings of General Setting mode are initialized.	–	Specific-Channel Setting mode: All specific data are initialized. The General Setting data will not be changed. General Setting mode: All general setting data are reset to default. The specific setting data will not be changed (will be retained).	○	○
[PAUSE]	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).	○	×
[ESC]	To quit Setting mode for a specific area and clear the on-screen display.	–	–	○	○

Notes:
- Each key listed in Table 1 above is active only while the tuner is completely stopped.
- The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

7.1.5 SERVICE MODE

Overview and purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:

[1] First screen : Version, HDD information, etc.
[2] Second screen : ATA/ATAPI debug screen (Writer information)
[4] Fourth screen : VR-recording-related error logs

Each screen has sublevel screens.

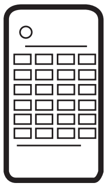
[Note] After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

1. Version information, etc. (First screen)

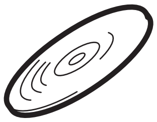
[Purposes]

To check the versions of the system control computer, TUNER microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, results of the simple error rate measuremen, HDD information, and OSD Filter setting

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

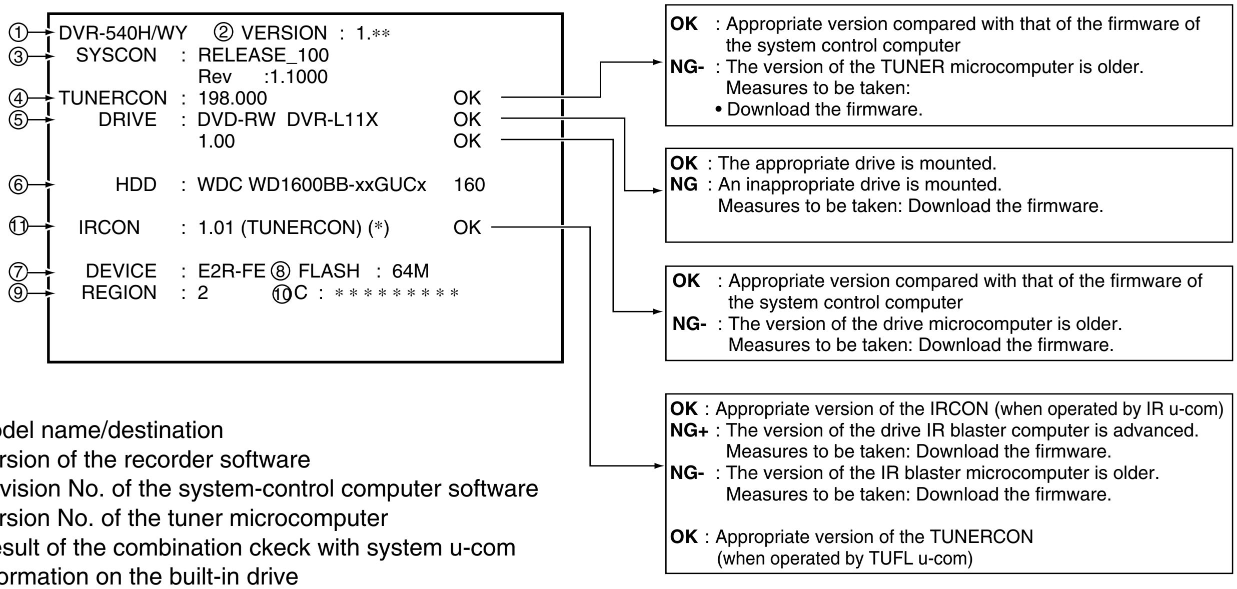
[How to enter] While the GUI screen is not displayed, press the ESC then DISP keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the DIG/ANA key repeatedly until your desired subscreen is displayed. The subscreens change

[How to quit] Press the ESC key.

[Description]

(1) First screen



```
DVR-540H/WY    VERSION  : 1.**
  SYSCON   : RELEASE_100
             Rev     :1.1000
TUNERCON   : 198.000                OK
     DRIVE : DVD-RW  DVR-L11X       OK
             1.00                   OK

       HDD : WDC WD1600BB-xxGUCx    160

    IRCON  : 1.01 (TUNERCON) (*)    OK

    DEVICE : E2R-FE   FLASH  : 64M
    REGION : 2        C : *********
```

OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the TUNER microcomputer is older.
Measures to be taken:
• Download the firmware.

OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
Measures to be taken: Download the firmware.

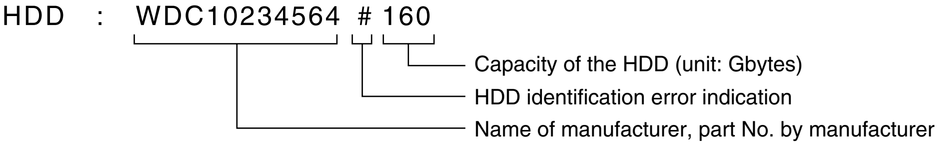
OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the drive microcomputer is older.
Measures to be taken: Download the firmware.

OK : Appropriate version of the IRCON (when operated by IR u-com)
NG+ : The version of the drive IR blaster computer is advanced.
Measures to be taken: Download the firmware.
NG- : The version of the IR blaster microcomputer is older.
Measures to be taken: Download the firmware.

OK : Appropriate version of the TUNERCON
(when operated by TUFL u-com)

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software
④ Version No. of the tuner microcomputer
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type)
⑥ Data of the built-in HDD, capacity of the HDD
⑦ DEVICE information (EMMA type, ES No.)
⑧ FLASH ROM information
⑨ Region No.
⑩ CPRM information (CPRM key No.)
⑪ IR Braster u-com information
(Version when operated by IR Braster u-com)
(*)(TUNERCON when operated by TUFL Con)

- **Details on HDD data are described below:**


HDD : WDC10234564 # 160
Capacity of the HDD (unit: Gbytes)
HDD identification error indication
Name of manufacturer, part No. by manufacturer

If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	• Check the connection to the ATA connector. • Replace the ATA flexible cable and connector. • Replace the HDD. • Replace the resistor in the ATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 160	• Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 160	"!" represents an HDD-recognition error. • Initialize the HDD or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 160	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

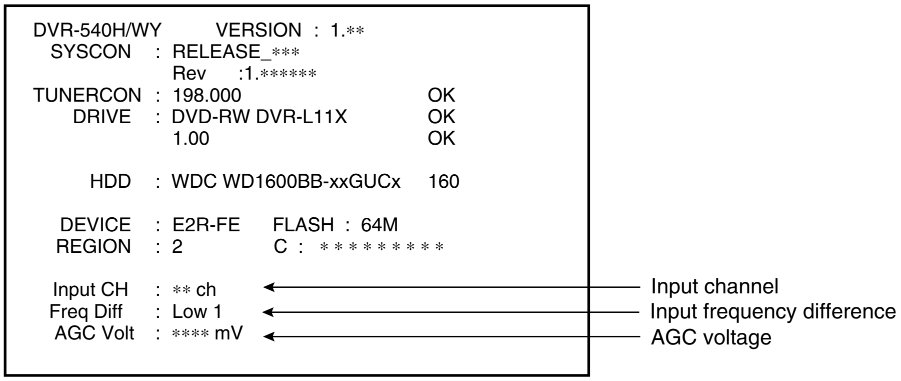
(2) Simple diagnosis of the RF level (Subscreen 1)

[Purposes] To check the RF signal of the U/V tuner by checking the input frequency difference and AGC voltage in this debug mode

[How to enter] While the User Setting display is displayed, press the ESC, DISP, then DIG/ANA keys, in that order.

[How to quit] Press the ESC key.

[Description]



```
DVR-540H/WY        VERSION  :  1.**
  SYSCON    :  RELEASE_***
               Rev     :1.******
TUNERCON    :  198.000                  OK
   DRIVE    :  DVD-RW DVR-L11X          OK
               1.00                     OK

     HDD    :  WDC WD1600BB-xxGUCx      160

  DEVICE    :  E2R-FE       FLASH  :  64M
  REGION    :  2            C  :  *********

 Input CH   :  ** ch
Freq Diff   :  Low 1
 AGC Volt   :  **** mV
```

Input channel
Input frequency difference
AGC voltage

Subscreen 1

1) Frequency Difference (Freg Diff)

How much tuning is off is monitored, as shown below:

Input Frequency	Display
Faraway	High 7
High (within 200kHz)	High 1~5
Just Tune	Center
Low within 200kHz	Low 1~5
Low over 200kHz	Low 7

2) AGC voltage (AGC Volt)

The gain controlled by the tuner is monitored to infer the input electric field intensity.
(The accuracy of inference differs depending on the product.)

	Field Intensity	**AGC VOL**
Intense field area (Clear image)	70 dBµ or more	3100 mV or less
Less intense field area (Noise may be generated.)	50 dBµ or more 70 dBµ or less	3100 - 4400mV
Weak field area (Much noise. EPG/VPS/PDC sometimes cannot be obtained.)	30 dBµ or more 50 dBµ or less	4400 mV or more (It is unable to discriminate under the weak field area.)
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	30 dBµ or less	4400 mV or more (It is unable to discriminate.)

Tips:
For good reception, the field intensity must be 50 dBµ or more (AGC Volt 4400 mV or less).
For accurate measurement, use a field intensity meter.

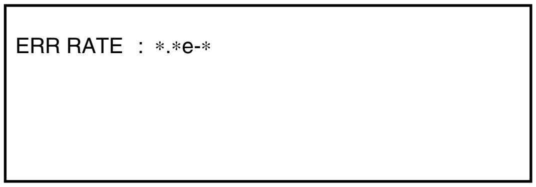
(3) Simple Error Rate Measurement (Subscreen 2)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key twice, in that order.
- While subscreen 1 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Measurement procedures]

① Display subscreen 2.
② Load the Test disc (GGV1025).
③ Judge the results of the error rate measurement by referring to Table 1 on page 89.



ERR RATE : *.*e-*

Subscreen 2

[Tips]

During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

Table 1: Thresholds when determining OK or Error

Disc type	Recording mode	Finalized or not finalized	Reference value
DVD-VIDEO	–	–	8.0×10^{-4}
DVD-R	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}
DVD-RW	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}

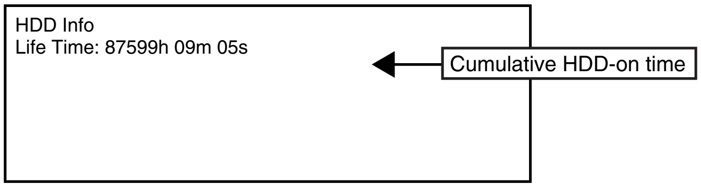
(4) HDD information (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key three times, in that order.
- While subscreen 2 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Mode description]



HDD Info
Life Time: 87599h 09m 05s

Subscreen 3

[Tips]

- **How the data on cumulative HDD-on time are processed in memory**

  Storage place:
  FLASH ROM

  Timing of referring to the data on cumulative HDD-on time:
  When the power is turned on, fails, the FLASH ROM is referred to.

  Timing of updating the data on cumulative HDD-on time:
  While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- **How to clear the data on cumulative HDD-on time**

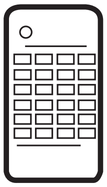
  FLASH ROM:
  When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys).

  Notes: • The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
  • The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

(5) OSD FILTER SETTING (SUB screen 4)

[Purpose] Depending on the monitor used, the character flicker on the OSD may stand out.
If a system, such as charavter flicker, appears on the monitor, select the filter response.

[Tools to be used]



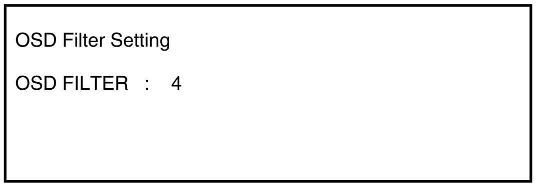
Remote control unit for servicing
(GGF1381)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key four times, in that order.
- While subscreen 3 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Setting procedures]

① Display subscreen 4.
② Select the setting from the key operation table.



OSD Filter Setting

OSD FILTER : 4

Subscreen 4

[Tips]

As the setting value becomes greater, jitter is reduced on a CRT display. However, as lines for characters appear thick, complex characters may become difficult to read. On the contrary, as the setting value becomes smaller, jitter increases on a CRT display. However, as lines for characters become sharper, complex characters become more legible.

Note: Use the remote control unit for servicing.
Note: A new setting becomes active as soon as it is made. As a new setting is stored in nonvolatile memory, it will be retrieved when the unit it turned on the next time.
Note: After the factory-preset values are downloaded, the setting value for the OSD Filter will be the default value (4).

[(Table 2) Key operation of OSD Filter setting]

Key	Operation	Setting value	Remarks
[Rev x 3], [SPEED+] [x 3 Fwd], [SPEED-]	Changing the setting value for the OSD Filter	0 - 4 (Default value: 4)	[Rev x 3], [SPEED+] : The setting value increases by 1. [x 3 Fwd], [SPEED-] : The setting value decreases by 1.
[CLEAR]	The setting value is reset to default.	–	
[ESC]	To exit the OSD Filter Setting and clear the screen (Appears the tuner screen.)	–	–

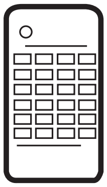
2. ATA/ATAPI Debug Screen (Second screen)

[Purposes]

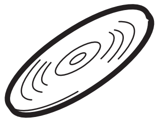
To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

[How to enter]

- While the User Operation display is displayed, press the ESC, DISP, then 2 keys, in that order.
- While any subscreen of the second screen is displayed, press the DIG/ANA key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the ESC key.

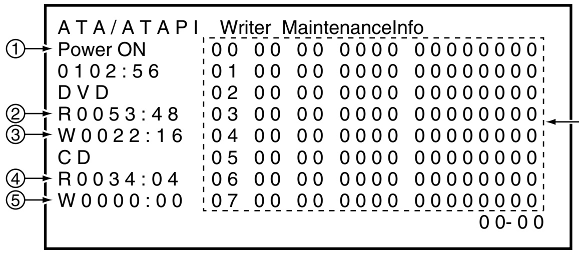
(1) Writer maintenance information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC,DISP then 2 keys, then the DIG/ANA key twice, in that order.

[How to quit] Press the ESC key.

[Procedures] Update the display by pressing the SEARCH key while subscreen 3 is displayed.



```
ATA/ATAPI  Writer MaintenanceInfo
Power ON   00 00 00 0000 00000000
0102:56    01 00 00 0000 00000000
DVD        02 00 00 0000 00000000
R0053:48   03 00 00 0000 00000000
W0022:16   04 00 00 0000 00000000
CD         05 00 00 0000 00000000
R0034:04   06 00 00 0000 00000000
W0000:00   07 00 00 0000 00000000
                            00-00
```

Error log for the Writer
(Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing
(This function is not used for this model.)

② If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded.
Perform an LD degradation judgment, using subscreen 4.

[Tips]

MTTF hours for each LD
DVD: 4,700 hours
CD: 11,000 hours

The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the SEARCH key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

[Note on lighting time data for each LD]

Since data on lighting time of each laser diode (LD) are stored in the flash ROM on the MAIN Assy, after the MAIN Assy is replaced, the data will be cleared. However, after the LOADER Assy is replaced, data on lighting time of each LD will be retained in the MAIN Assy. Therefore, before either the MAIN Assy or LOADER Assy is to be replaced, it is recommended that you write down the lighting time data.

(2) LD degration judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

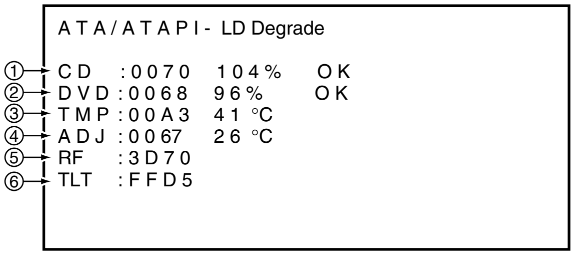
[How to enter] • While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key three times, in that order.

[How to quit] Press the ESC key.

[Notes]

- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25°C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025).
  As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the SEARCH key while subscreen 4 is displayed.
For details on each item and the conditions of updating the values, see Table 2 below.



```
ATA/ATAPI- LD Degrade

CD  :0070  104%   OK
DVD :0068   96%   OK
TMP :00A3   41 °C
ADJ :0067   26 °C
RF  :3D70
TLT :FFD5
```

Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition

If the results of degradation of the LDs for CDs and DVDs are both NG, replace the drive.

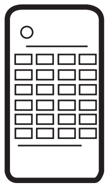
3. VR-Recording-Related Error Logs (Fourth screen)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

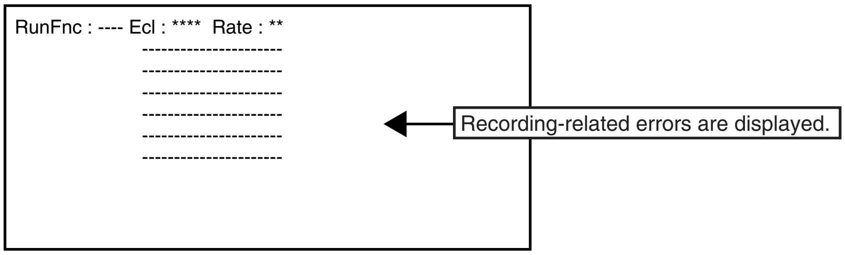
- While the User Operation display is displayed, press the ESC, DISP, then 4 keys, in that order.
- While any subscreen of the fourth screen is displayed, press the DIG/ANA key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the ESC key.

[Description of each subscreen]

(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err:," as shown below.
  For details on errors, see "Table 1: Description of VR-recording-related errors."

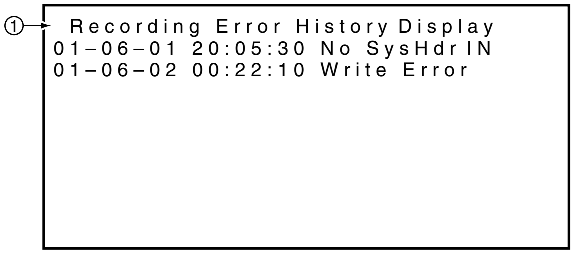


```
RunFnc : ---- Ecl : ****  Rate : **
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
```

Recording-related errors are displayed.

(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



```
 Recording Error History Display
01-06-01 20:05:30 No SysHdr IN
01-06-02 00:22:10 Write Error
```

① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 11 (These subscreens are not for service use.)

Table 1: Description of VR-recording-related errors

Any error message marked with ∗ is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.

● Error related to MPEG Encoder

Error Message	Description
AVEnc Hang	AVEncoder failed
IN Encode ∗	Changes cannot be made in the process of encoding
No SysHdr IN	System packet is not input periodically
Stm Start NG	Failure to start encoding (reasons not clear)
Stream NG	Inappropriate input stream data
Strm Start NG	Timeout waiting for system packet input at the beginning

● Error related to Drive system

In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Error Message	Description
Bdr Cls NG	Close Border failed
Bdr Opn NG	Open Border failed
BUF Overflow	Overflow of the Stream Buffer
CLS Rzon Fail	Video Mode Close Rzone failure
Drive Hang	The Drive is hung up.
Drv Err	General error of the drive
Drv Hard Err	Abnormality in the drive hardware or firmware
Drv TimeOut	Timeout waiting for drive operation
Fail Repair	Repair failed
Format NG	Format failed
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Mech No Res	No response from the mechanical-control computer
MKB Invalid	MKB reading error
NWA Exhaust	NWA surpassed and impossible to use
OPC NG	OPC failed
PCA Full	PCA has been used up.
Read Err	Reading failed, ECC failed, etc.
ReadOnly DISC ∗	Because some data are invalid, data cannot be written
RMA Full	RMA has been used up.
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Rzn Rsv NG	Reserve RZone failed
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI_B2 Wr Err	Video Mode VTSI BUP Write Error (After Layer Change)
VTSI Wr Err	Video Mode VTSI Write Error
VTSI2 Wr Err	Video Mode VTSI Write Error (After Layer Change)
Write Err	The Drive failed to write and could not be recovered.
May Be PVR	May be +VR disc, but no RSAT
V Final fail	Abnormal process occurred when finalizing Video mode
DLVR trace NG	Close Rzone failed at dual layer disc

RSAT : Reserved Space Allocation Table

● Error related to Dubbing

Error Message	Description
H2D CP SomeNG	Other NG HDD →DVD copy
Mem get NG	Video Mode Copy Memory has not ensured.
Strm TransfNG	Video Mode Copy Stream Transfer NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC CopyCancel	Video Mode Copy Copy Cancel
VC FlushC NG	Video Mode Copy Flush Cache NG
VC HDD C Err	Obtaining Video Mode Copy HDD Cell information failed
VC HDD Inf NG	No information on Video Mode Copy HDD
VC HDD Info NG	Format failed
VC Idling NG	Video Mode Copy idling NG
VC Pck Anl NG	Analizing Video Mode Copy Pack failed

● Error related to Dubbing (continued)

Error Message	Description
VC Transf Stp	Video Mode Copy Transfer Stop
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC VOBU SizeE	Video Mode Copy VOBU Size NG
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
V2H APP FL NG	VR → HDD APP FLG is OFF
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H SRC Prot	VR →HDD copy prohibitted material
V2H Unknown	VR →HDD other NG
V2H VOBU TMNG	VR →HDD Play back time of each VOBU is different
V2H V Reso NG	VR →HDD Video resolution NG
H2D CP NoSpac	HDD →DVD insufficient free space for copy
H2D TO HDDRD	HDD →DVD (VR) TimeOut at HDD playing side
H2D TO SPRO	HDD →DVD (VR) TimeOut at internal processing
H2D TO DVDWR	HDD →DVD (VR) TimeOut at HDD recording side

● Other Errors

Error Message	Description
Abort *	Cancellation
Already open	Extension file is already opened.
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
BUG	Some bugs
BusReset Done	Bus Reset has been excecuted.
Cell Close NG	Cell Close NG
CPRM IC NG	Inappropriate CPRM IC
Dir Depth Err	Tree of Directory is too deep.
Disc Full	No further data can be written because the disc is full.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
DRAM NG	Abnormality in access to the Work DRAM
Drive Destroy	The drive has crashed.
EncModul Hang	Encoder routine is hung up.
F Alrdy Exst	Extension file is already exist.
File cansel	Extension file is canseled.
FileNot Exist	Extension file is not exist.
Format Excec	Formatting has been executed.
Invalid Disc *	The disc cannot be recognized.
Invalid Param *	Invalid parameter
Invalid TMVMG	Invalid TMP_VMGI content
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid VTSI	VTSI information of +VR is unusual.
Irr Action *	Incorrect action
MKB REVOKED	Error in gaining data
Limit Over *	Standard maximum limit exceeded
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
No Video	No video input (not locked)
Now Busy *	In the process of the emergency processing
NV Pck DMA Er	Inappropriate NaviPack DMA
NV Pck MK Err	Error in creating NaviPack
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
Over Heat	Abnormal temperatute
PARAM NO ACCP	Recording parameter is not matched.
Process Over	Process is overfull.
Protect Src *	Source to be recorded is copy-protected.
Rec Pause *	No operation permitted during recording pause
Relocation Do	VR-recording data was relocated

● Other Errors (continued)

Error Message	Description
Repair Excec	Repairing has been executed.
Something *	Undetermined error
SRAM NG	Abnormality in access to the backup work SRAM
Status NG *	Abnormality in change of statuses
SW PVR	Switch to +VR playback process
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
VBR-SRAM NG	Abnormality in VBR SRAM
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
V Ext TY NG	Type NG
Virgin DISC	Virgin Disc
VOBU Info NG	Inappropriate VOBU information
WaterMark Det	Watermark detected
WM Cracked	WM Cracked
Param Short	Editting Error (Clear A-B)
Invalid VRMI	Information of +VR is NG. (VRMI)

● Error related to HDD

Error Message	Description
Do nothing	Do nothing for demand.
ESFSYS CORUPT	easyfsys error
ESFSYS INIT	easyfsys initializing
HDD Buff High	High-level process executed for the HDD Buffer
HDD DEF DONE	HDD deflag finished
HDD DEF ERR	HDD deflag error
HDD Destroy	HDD is not recognized on the bus.
HDD INFO BAD	Incorrect HDD Management Data
HDD Initialize	HDD initialized
HDD IRRG POFF	Abnormal power off
HDD MBR NG	Inconsistent MBR data
HDDReset Done	HDD Reset executed
HDD ROMSUM NG	Rom-code check sum NG
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD SMART NG	Inappropriate HDD SMART
HDD Trans Err	DMA error in HDD copy transfer
HDD unauthor	Inconsistent HDD serial No.
HDD Zero WR	MBR was witten
Task No Activ	Task has not been activated.
TT Rec Over	Title recording time full
HDD WRONG TGT	Invalid HDD target No. is directed.
extHDD Ignore	External HDD is dismounted.
HDD PFile NG	Program file installed in HDD is NG.
HDD DEL TT	Delete the title by HDD recovery.
HDD DEL PL	Delete the dubbing list by HDD recovery.
HDD DEL OC TT	Delete the title moving on the way inside HDD

● No Error

Error Message	Description
Non Err *	Normal

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

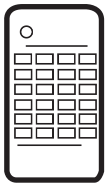
7.1.6 DV SERVICE MODE

1. DV debug

[Purpose]

To check whether communication between a DV device and the unit is normal when a DV device is connected

[Tools to be used]



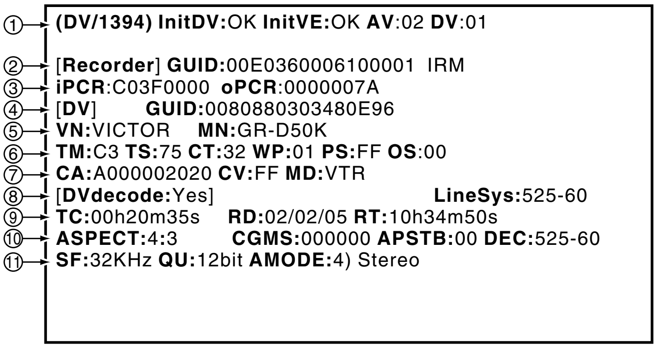
Remote control unit for servicing (GGF1381)

- DV device
- DV cable

[How to enter] Press the ESC , DISP then 3 keys, in that order.

[How to quit] Press the ESC key.

[Mode description]



```
①→ (DV/1394) InitDV:OK InitVE:OK AV:02 DV:01

②→ [Recorder] GUID:00E0360006100001  IRM
③→ iPCR:C03F0000  oPCR:0000007A
④→ [DV]       GUID:0080880303480E96
⑤→ VN:VICTOR    MN:GR-D50K
⑥→ TM:C3 TS:75 CT:32 WP:01 PS:FF OS:00
⑦→ CA:A000002020 CV:FF MD:VTR
⑧→ [DVdecode:Yes]                      LineSys:525-60
⑨→ TC:00h20m35s    RD:02/02/05 RT:10h34m50s
⑩→ ASPECT:4:3        CGMS:000000 APSTB:00 DEC:525-60
⑪→ SF:32KHz QU:12bit AMODE:4) Stereo
```

Boldface alphanumerics : Fixed indications
Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	InitDV	Whether the initialization of UPD72893B(1394 LINK and DV codec IC) has been completed (OK) or not (NG)	If NG is displayed, it is considerd the communication failure to UPD72893B.
	InitVE	Whether the initialization of ADV7172 (Video Encoder for DV specific) has been completed (OK) or not (NG)	If NG is displayed, it is considerd the communication failure to ADV7172.
	AV	Number of AV devices recognizing connection	Identification number of AV devices including D-VHS, Digital Tuner, etc other than DV devices.
	DV	Number of DV devices recognizing connection	If the number does not become 01 even if a DV device is connected, identification of that device fails.
②	GUID	GUID set in ConfigROM of the unit	GUID : Global Unique ID (Specific ID for DV devices) If the unit is ROOT (IRM), IRM is displayed at the side position of GUID display.

No.	Item	Description	Remarks
③	iPCR	iPCR value of the unit	
	oPCR	oPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connectd DV device is ROOT (IRM), IRM is displayed at the side position of GUID display.
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the model name may not be set in ConfigROM.)
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Write-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/Vtr mode data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV.
	LineSys	Input Line System setting	
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when the tape is played in forward direction. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch 2, bits 3-2: Audio ch 1, and bits 1-0: Video)	*CGMS (Copy Generation Management System): The two-digit codes added to broadcast programs represent the following: 00: Copy freely, 10: Once copy, 11: Never copy
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	

2. Simple Diagnosis of DV

Symptoms		Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for DV input	1	DV ①	Check the initDV indication: OK: Initialization of DV related LSI (IC102, IC108) appropriately completed. NG: Initialization of DV related LSI (IC102, IC108) has not been completed properly. Defective communication with DV related LSI (IC102, IC108) and Host u-com (IC1001)	Defective IC102(1394Link & DVcodec)/ IC108(1394PHY), improper connection between IC102 / IC108, defective soldering, defective power supply, etc.
	2	DV ①	Check the number of DV devices when one DV device is connected to the recorder: 01 : The connected DV device is correctly identified. Other than 01 : The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC108(1394PHY), defective cables, an IEEE 1394 device other than the DV device connected.
No picture nor sound for DV input	1	DV ⑧	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC102(1394Link & DVcodec), defective soldering, defective power supply, etc.
	2	DV ⑩	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective source device defective IC102(1394Link & DVcodec), IC108(1394PHY) **Note:** As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	1	DV ⑩	Check CGMS:	Recording cannot be performed for a copy-protected source.
No sound for DV input	1	DV ⑪	Check SF: 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.
No picture for DV input	1	DV ①	Check the initVE indication: OK: Initialization of DV specific VideoEncoder (IC101) appropriately completed. NG: Defective communication with DV specific VideoEncoder (IC101) and HOST u-com (IC1001). Initialization of DV specific VideoEncoder (IC101) has not been completed properly.	Defective IC101(DV specific VideoEncoder), defective soldering, defective power supply, etc.

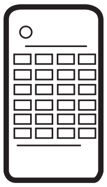
7.1.7 EPG SERVICE MODE

[Purposes]

Reasons for the following malfunctions can be inferred by checking the conditions for obtaining the past EPG data:

① EPG data cannot be obtained.
② Some EPG data obtained are missing.

[Tool to be used]



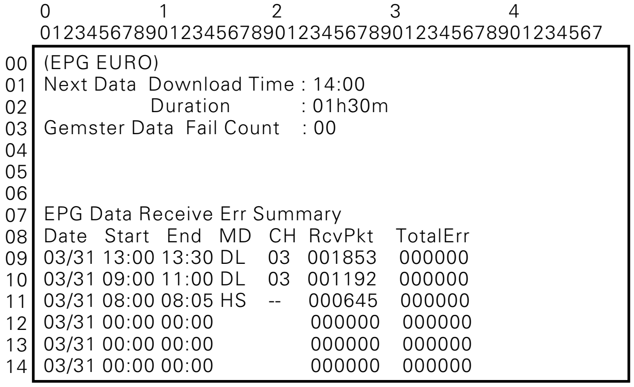
Remote control unit for servicing
(GGF1381)

[How to enter] • Press the ESC, DISP, 7 keys, in that order.

[How to quit] Press the ESC key.

[Description of the mode]

1. Summary screen



```
   0         1         2         3         4
   012345678901234567890123456789012345678901234567
00 (EPG EURO)
01 Next Data  Download Time : 14:00
02                 Duration          : 01h30m
03 Gemster Data  Fail Count   : 00
04
05
06
07 EPG Data Receive Err Summary
08 Date   Start   End   MD   CH  RcvPkt   TotalErr
09 03/31 13:00 13:30 DL   03   001853   000000
10 03/31 09:00 11:00 DL   03   001192   000000
11 03/31 08:00 08:05 HS   --   000645   000000
12 03/31 00:00 00:00            000000   000000
13 03/31 00:00 00:00            000000   000000
14 03/31 00:00 00:00            000000   000000
```

Lines 01-02	The next download starting time for the EPG data is displayed. Next Data Download Time: Starting time Duration: Duration required for acquiring the EPG data
Lines 03	The Gemster EPG data cannot be found. Number times of Host Scan and Schedule Download, DT models only (Always 00 except DT model)
Lines 09-14	The 6 latest error logs when EPG data were received are displayed, with the latest one at the top.

Date	: Month/day when reception started
Start	: Time when reception started
End	: Time when reception ended
MD	: Method for acquiring the EPG data (HS: Host scanning process, DL: Downloading process of the EPG data)
CH	: Data-receiving channel
RcvPkt	: Total number of received packages. A number 999,999 or greater is displayed as "999999."
Total Err	: Total errors during reception. The sum of Hamming Err, Trans Err and InvLine Err numbers indicated on the Detail screen. A number 999,999 or greater is displayed as "999999."

[Tips] In a case where only "HS" is displayed in the MD column of the logs, the host channel has not been found.
It is necessary to check the country and postal-code settings in the user settings.

2. Detail screen

[How to enter] Press the DIG/ANA key while the Summary screen is displayed. Up to 6 detail screens (1 to 6) are displayed, one each time the DIG/ANA key is pressed. Each detail screen 1 to 6 corresponds with the EPG reception error logs from the top on the Summary screen.

[How to quit] Press the ESC key.

[Description of the Detail screens]

```
      0         1         2         3         4
      01234567890123456789012345678901234567890123456789
   00 (EPG EURO)
   01 EPG Data Receive Err Details - 1
   02
   03 Date : 03/31
   04 Start Time : 13:00   END Time   : 13:30
   05 Host CH    : 03      P-ON Kind  : Download
   06
   07 Data Receive Part    Total Err  : 000000
   08 Pkt Rcv Num  : 001853  Pkt Snd Num : 001853
   09 Inv Line Err : 000000
   10 Slice Cont : Auto EQ : OFF LV : -h
   11
   12 Temporary  Buffer  Information
   13 Pool  Num    : 000000  Max  Store  : 000000
   14 Discard Pkt  : 000000  Use  Num    : 000000
```

Line	Display item	Description	Remarks
Line 01	EPG Data Receive Err Details-X	The rightmost figure represents the number of the current detail screen. This number corresponds to the order of the EPG reception error log from the top.	
Lines 03-05, Reception conditions	Date Start Time END Time Host CH P-ON Kind	: Month/day when reception started : Time when reception started : Time when reception ended : Data-receiving channel : Methods for acquiring the EPG data (host scanning and downloading)	Only during initialization, host scanning is automatically executed to find the host broadcast.
Lines 07-10, details on errors during reception	Total Err	: Total numbers of errors during reception. The total number of Hamming Err, Trans Err and InvLine Err indicated on the Detail screen. A number 999,999 or greater is displayed as "999999."	Total Errors: If the total number of errors reaches two digits or greater, it is likely that EPG data acquisition failed. Display subscreen 1 of the first screen and check the electric field intensity from the AGC level.
	Pkt Rcv Num Pkt Snd Num	: Total number of received packages. A number 999,999 or greater is displayed as "999999." : Total number of packages that were sent to the application program among all the received packages. A number 999,999 or greater is displayed as "999999."	If the total number of received packages is 0, it is likely that the country and postal-code settings are wrong.
	InvLine Err	: Total number of errors that were generated by receiving data from invalid lines. A number 999,999 or greater is displayed as "999999."	
	Slice Cont	: Slice level control Auto-Tu Con, Manual - Syscon.	
	EQ	: Equalizer setting (ON, OFF)	
	LV	: Slice level (10~30 hex) (Only when the slice Cont is Manual.)	

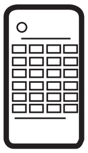
Note: The data on lines 12-14 are for software development, not for service use.

7.1.8 AGING MODE

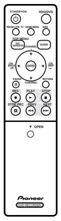
[Purposes]

If symptoms regarding recording/playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

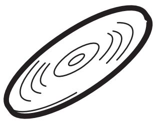
[Tools to be used]



Remote control unit for servicing (GGF1381)



Remote control unit supplied with the unit (VXX3129)



Commercially available, recordable DVD-R/+R and DVD-RW/+RW/-RAM discs

[Notes]

- When aging for the DVD-RW/+RW/-RAM and HDD is executed, all recorded data on them will be erased.
- Commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

① Press the DVD key to switch to DVD.
② Load a recordable disc.
③ Select the input function of a recordable source.
④ After disc detection is performed, press the ESC then REP.B, and then PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished.
- If the tray is being opened/closed: The unit stops after the tray is opened/closed.

(aging for ±RW/-RAM only)

[Description of operation] **Aging for the DVD-RW/DVD-R**

Aging for the DVD-RW/+RW/-RAM	Aging for the DVD-R/+R
During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes <DVD-RW> The initialization process in step 3 follows the setting specified in "Setting of the main unit--Recording--Auto initialization of a DVD-RW." <DVD+RW> The initialization process in step 3 is the same as that described in "Disc setting--Initialization--Initialization of a DVD+RW." <DVD-RAM> In the initialization process in step 3, physical formatting is performed, if required. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ② the tray closes, disc detection is performed, <DVD-R> In step 2, if the disc is judged to have recorded up to 99 titles, the operation stops at that point. <DVD+R> If the disc is judged to have recorded up to 49 titles, the operation stops at that point. On the FL display, the number of loops is retained. On the OSD display, the error indication is retained. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

[Aging for the HDD]

[How to enter]

① Press the HDD key to switch to HDD.
② Press the ESC key then the REP.B, and then the PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.
① Erasure of all the memory data from the HDD
② Recording for 60 minutes
③ Playback for 60 minutes

∗ *Take catution as the all recorded data of HDD is deleted.*

[Tips]

During Aging, the number of loops is indicated on the FL display, as shown below.
[AGING 0001]

If an error is generated, the aging operation stops.

Note:

Indications on the FL display are retained, and this information is also retained as an OSD.

7.1.9 HDD CHECK MODE

How to diagnose failure of the hard disc drive (HDD)

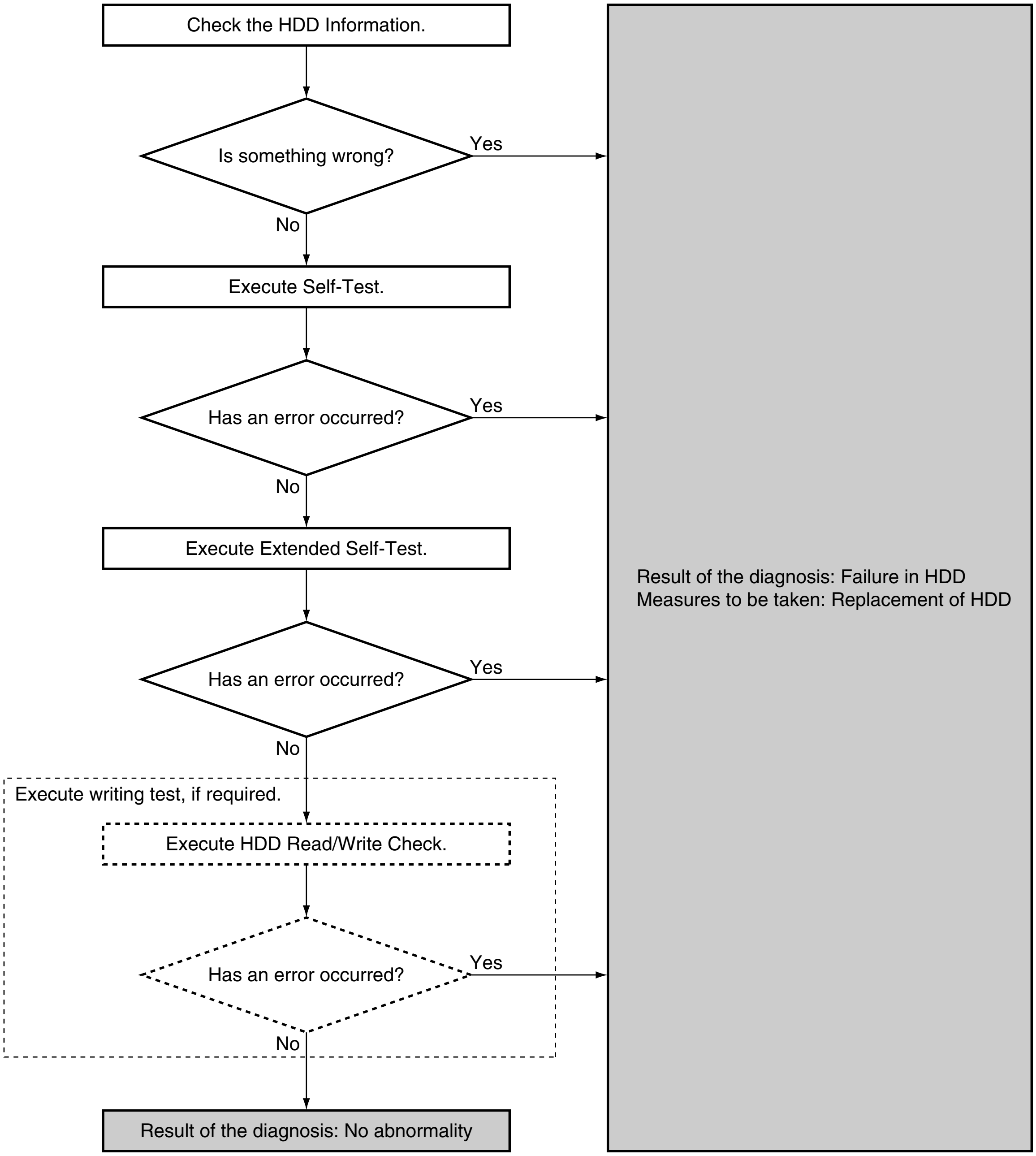
Purpose:
With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:
(1) HDD Error
(2) Failure in HDD recording or playback
(3) HDD not recognized

Tool to be used:
Remote control unit for servicing (GGF1381)

1. Flow of HDD diagnosis

(1) Flowchart of HDD diagnosis


Check the HDD Information.
Is something wrong?
Yes
No
Execute Self-Test.
Has an error occurred?
Yes
No
Execute Extended Self-Test.
Has an error occurred?
Yes
No
Execute writing test, if required.
Execute HDD Read/Write Check.
Has an error occurred?
Yes
No
Result of the diagnosis: No abnormality
Result of the diagnosis: Failure in HDD
Measures to be taken: Replacement of HDD

(2) Overview of the diagnosis items

HDD Information	This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.
SELF TEST	This is a simplified diagnosis for the HDD. A serious failure in the HDD can be detected with this test. Time required for testing: Approx. 60 sec.
EXTENDED SELF TEST	This is a reading test across all sectors of the HDD. Data recorded on the HDD will not be erased, because no writing operation is performed. Time required for testing: Approx. 2 hours/160 GB
HDD Read / Write Check	This is a writing, reading, and comparing test across all sectors of the HDD. **All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.** Time required for testing: Approx. 6.4 hours/160 GB

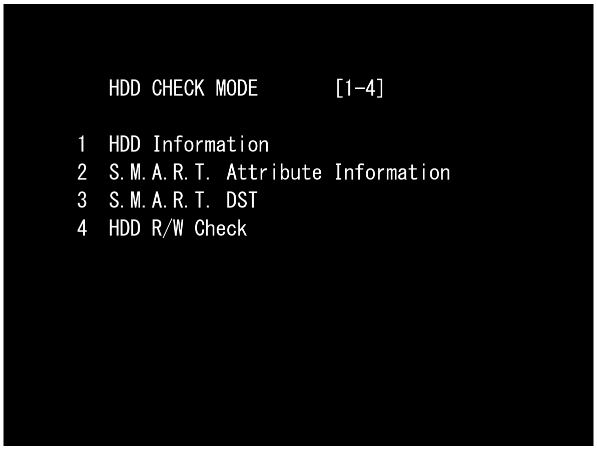
2. How to start or terminate the diagnostic program

How to start/terminate the diagnostic program

Use the remote control unit for servicing.
How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.
How to terminate: Press the "ESC" key.
Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.
The status of the unit recommended during diagnosis is as follows: All stop, no timer recording (including auto-recording), and Input selection to L1-L3.

3. Diagnosis procedures

① Display the menu on the screen.
The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"-"4" on the remote control unit for servicing.



```
    HDD CHECK MODE       [1-4]

 1  HDD Information
 2  S.M.A.R.T. Attribute Information
 3  S.M.A.R.T. DST
 4  HDD R/W Check
```

Tests to be executed

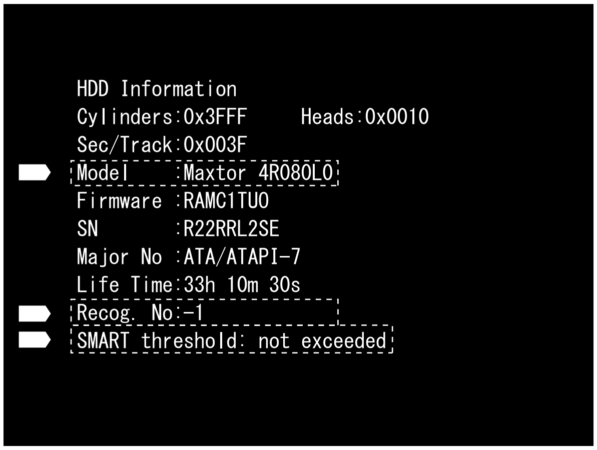
① HDD Information:
Check of the HDD information

② S.M.A.R.T. DST:
Executing a simplified test or a reading test of all data

③ HDD R/W Check:
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

② Check the HDD information.
Press the "1" key on the remote control unit for servicing. Check the following data:
Model: Is the correct model name of the HDD displayed?
Recog. No: Is a positive value displayed?
SMART threshold: Is "not exceeded" displayed?



```
HDD Information
Cylinders:0x3FFF     Heads:0x0010
Sec/Track:0x003F
Model    :Maxtor 4R080L0
Firmware :RAMC1TU0
SN       :R22RRL2SE
Major No :ATA/ATAPI-7
Life Time:33h 10m 30s
Recog. No:-1
SMART threshold: not exceeded
```

Detailed description

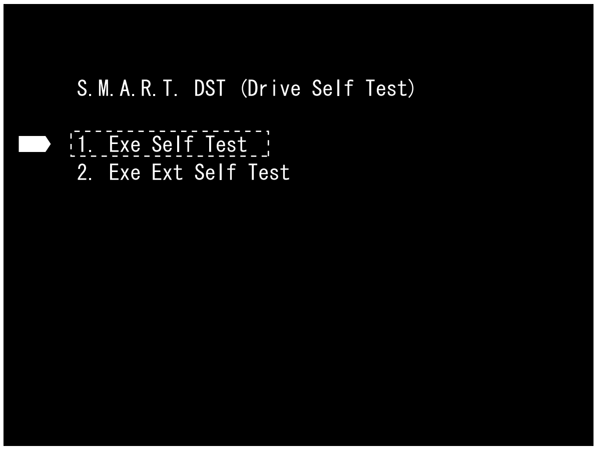
① Model:
For the correct model name, refer to the display of the unit.

② Recog. No:
Positive value: The HDD has been authenticated.
Negative value: The HDD has not been authenticated.

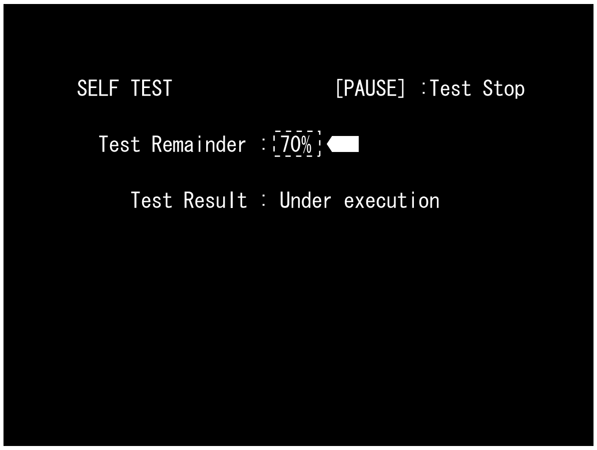
③ SMART threshold:
exceeded: The HDD has come to the end or near the end of its service life.
not exceeded: The HDD has not reached the end of its service life.

To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.
Press the "3" key on the remote control unit for servicing while the menu screen is displayed.
When the following screen is displayed, press the "1" key to start the Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



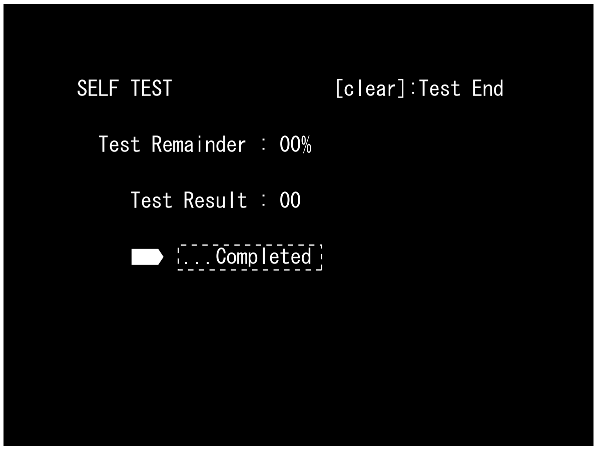
```
SELF TEST              [PAUSE] :Test Stop

  Test Remainder : 70%

     Test Result : Under execution
```

The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.
Check whether or not an error has occurred after the test is finished.

Diagnosis results
- Without an error: ". . . Completed" is displayed.
  Then, proceed to the Extended Self-Test.
- With an error: ". . . Error" is displayed. Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

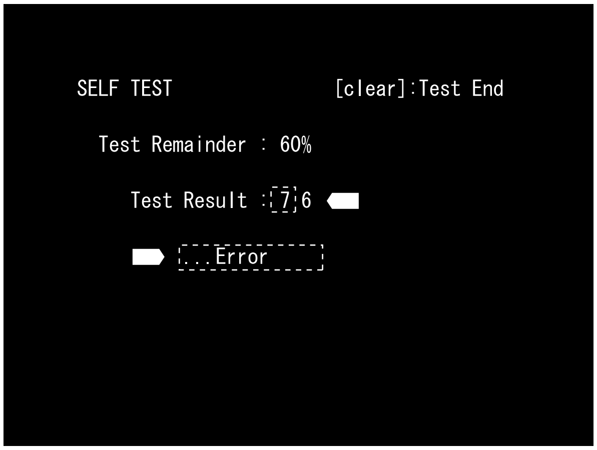
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST              [clear]:Test End

  Test Remainder : 00%

     Test Result : 00

     ...Completed
```

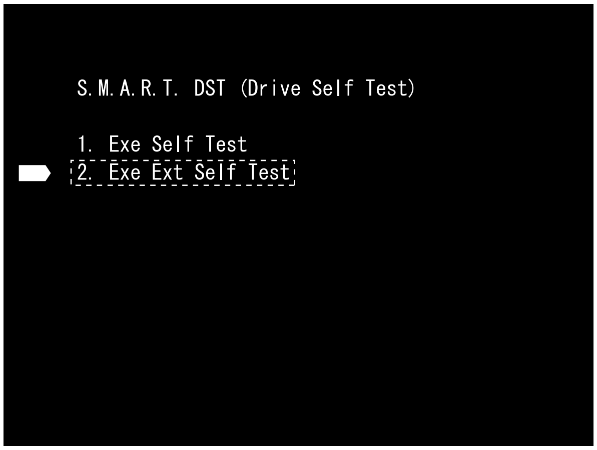
Example: With an error



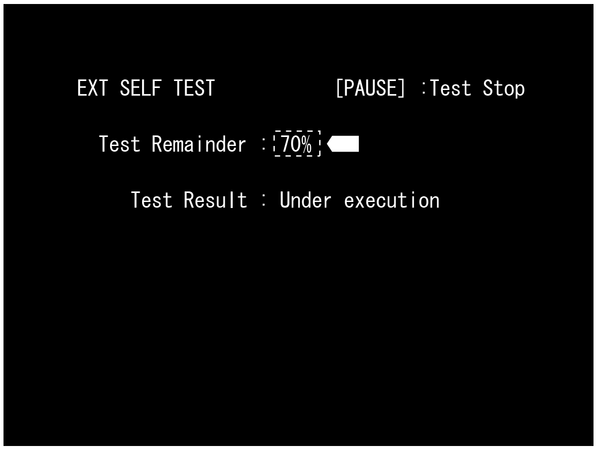
```
SELF TEST              [clear]:Test End

  Test Remainder : 60%

     Test Result : 76

     ...Error
```

To return to the menu screen, press the "Clear" key.

④ Execute the Ext (Extended) Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



```
EXT SELF TEST          [PAUSE] :Test Stop

  Test Remainder : 70%

     Test Result : Under execution
```

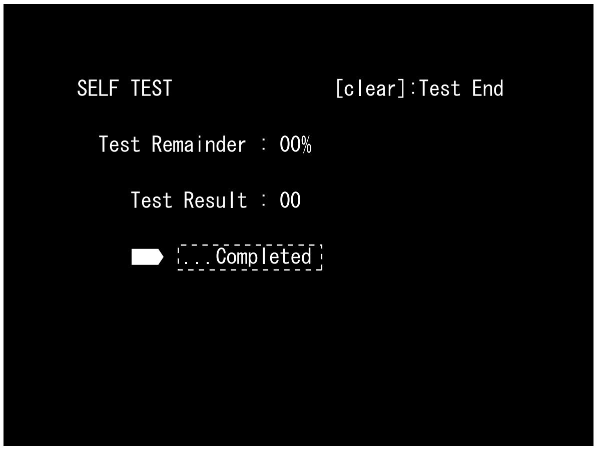
Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing.
The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

Diagnosis results

- Without an error: ". . . Completed" is displayed.
  If no error occurs up until this stage, HDD operations are normal except for writing operations.
  If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
  If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.
  Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Ext Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

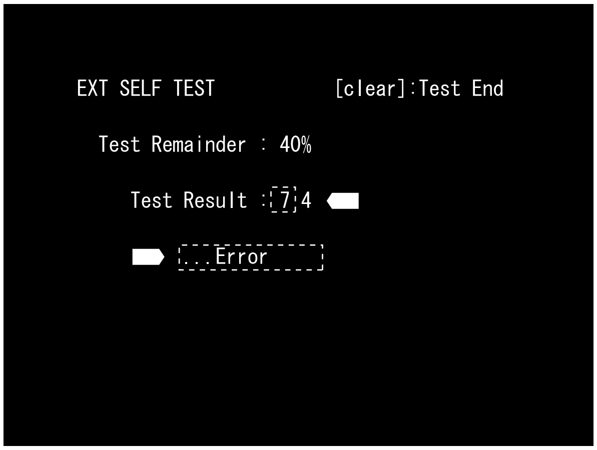
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST              [clear]:Test End

  Test Remainder : 00%

     Test Result : 00

         ...Completed
```

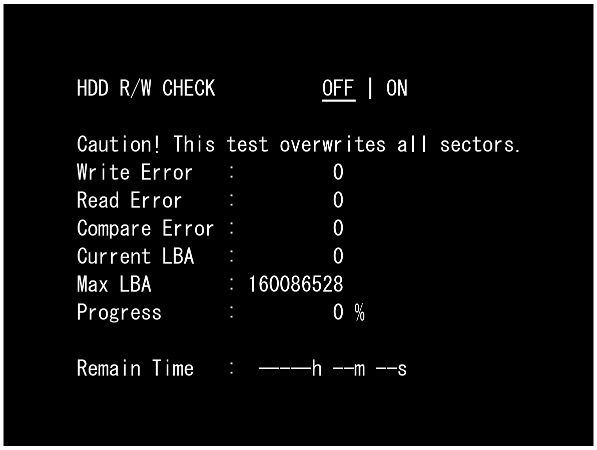
Example: With an error



```
EXT SELF TEST          [clear]:Test End

  Test Remainder : 40%

     Test Result : 74

         ...Error
```

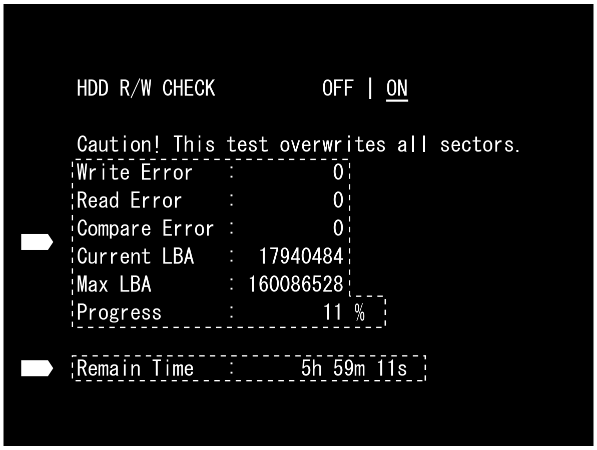
To return to the menu screen, press the "Clear" key.

⑤ Execute the HDD R/W Check.
Before executing this test, **be sure to obtain your client's consent for erasure of HDD data**.
Press the "4" key while the menu screen is displayed then the "SKIP ►►|" key to start the HDD R/W Check.
To stop executing the test (OFF) while it is in progress, press the "SKIP |◄◄" key.



```
HDD R/W CHECK          OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :         0
Max LBA       : 160086528
Progress      :         0 %

Remain Time   :  -----h --m --s
```

The display on the left indicates the progress of the test.
The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.



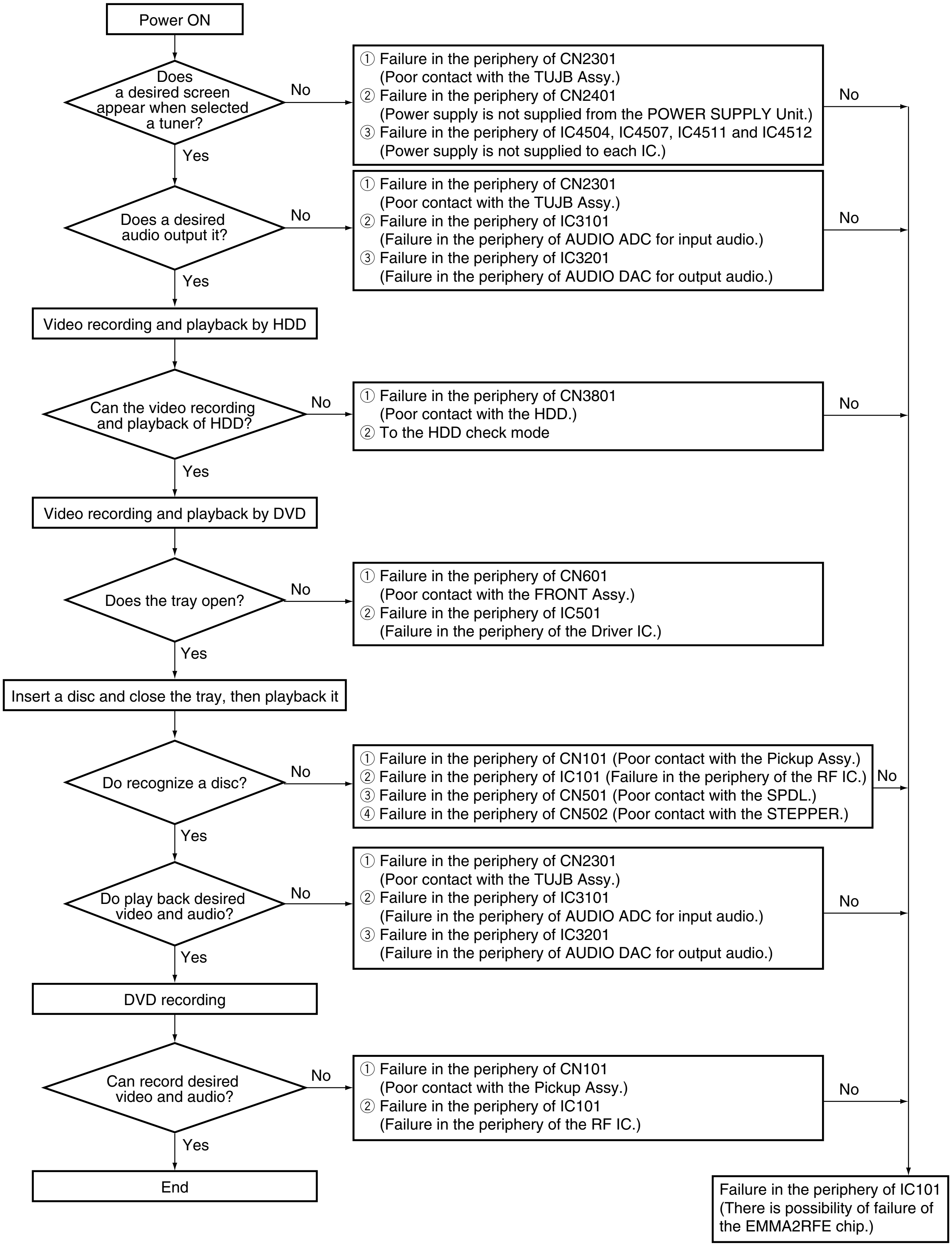
```
HDD R/W CHECK          OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :  17940484
Max LBA       : 160086528
Progress      :        11 %

Remain Time   :      5h 59m 11s
```

Detailed description on each item on the screen
- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.
  Estimated time: 6.4 hours/160 GB

Diagnosis results
- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

7.1.10 DIAGNOSIS OF THE MAIN ASSY


Power ON
Does a desired screen appear when selected a tuner?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of CN2401 (Power supply is not supplied from the POWER SUPPLY Unit.)
③ Failure in the periphery of IC4504, IC4507, IC4511 and IC4512 (Power supply is not supplied to each IC.)
No
Yes
Does a desired audio output it?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
Video recording and playback by HDD
Can the video recording and playback of HDD?
No
① Failure in the periphery of CN3801 (Poor contact with the HDD.)
② To the HDD check mode
No
Yes
Video recording and playback by DVD
Does the tray open?
No
① Failure in the periphery of CN601 (Poor contact with the FRONT Assy.)
② Failure in the periphery of IC501 (Failure in the periphery of the Driver IC.)
Yes
Insert a disc and close the tray, then playback it
Do recognize a disc?
No
① Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
② Failure in the periphery of IC101 (Failure in the periphery of the RF IC.)
③ Failure in the periphery of CN501 (Poor contact with the SPDL.)
④ Failure in the periphery of CN502 (Poor contact with the STEPPER.)
No
Yes
Do play back desired video and audio?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
DVD recording
Can record desired video and audio?
No
① Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
② Failure in the periphery of IC101 (Failure in the periphery of the RF IC.)
No
Yes
End
Failure in the periphery of IC101 (There is possibility of failure of the EMMA2RFE chip.)

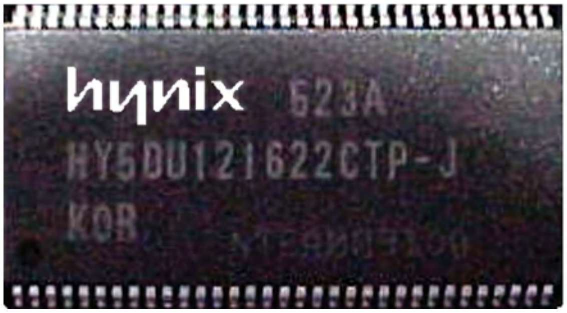
7.1.11 NOTE ON REPLACEMENT OF THE SDRAM

Note when replacing the SDRAM

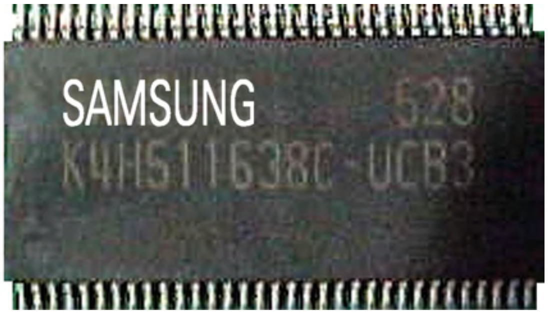
When replacement of the SDRAM (IC1201 or IC1221) on the MAIN Assy is required, identify the manufacturer of the SDRAM. If the SDRAM that needs replacement was manufactured by HYNIX, both IC1201 and IC1221 must be replaced at the same time.
SDRAMs for service are manufactured by SAMSUNG.

• How to identify the manufacturer
Confirm the name of the manufacturer stamped on the surface of the part.

By HYNIX (replacement of both SDRAMs required)



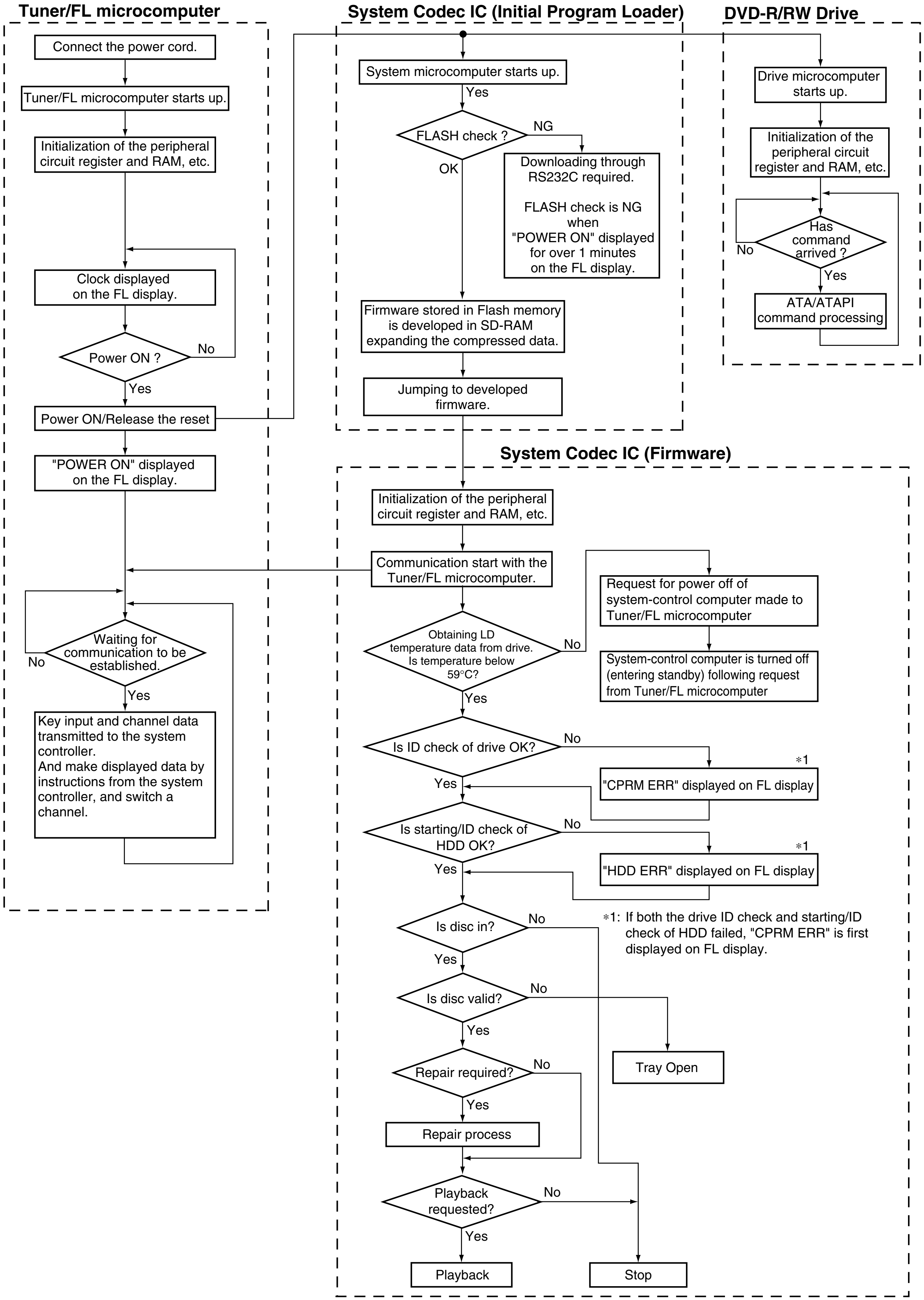
By SAMSUNG (replacement of only the defective SDRAM possible)



• Measures to be taken
① If the SDRAM that needs replacement was manufactured by HYNIX:
Replace both IC1201 and IC1221 at the same time.
② If the SDRAM that needs replacement was manufactured by SAMSUNG:
Replacement of only the defective SDRAM (IC1201 or IC1221) is possible.

• Possible malfunctions
If SDRAMs made by different manufacturers are mounted on the MAIN Assy, the following malfunctions may occur:
① The power does not come on.
② High-speed dubbing disabled
③ Other malfunctions related to the SDRAM

7.1.12 SETUP SEQUENCE


Tuner/FL microcomputer
Connect the power cord.
Tuner/FL microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Clock displayed on the FL display.
Power ON ?
No
Yes
Power ON/Release the reset
"POWER ON" displayed on the FL display.
Waiting for communication to be established.
No
Yes
Key input and channel data transmitted to the system controller. And make displayed data by instructions from the system controller, and switch a channel.
System Codec IC (Initial Program Loader)
System microcomputer starts up.
Yes
FLASH check ?
NG
OK
Downloading through RS232C required.
FLASH check is NG when "POWER ON" displayed for over 1 minutes on the FL display.
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware.
DVD-R/RW Drive
Drive microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Has command arrived ?
No
Yes
ATA/ATAPI command processing
System Codec IC (Firmware)
Initialization of the peripheral circuit register and RAM, etc.
Communication start with the Tuner/FL microcomputer.
Obtaining LD temperature data from drive. Is temperature below 59°C?
No
Yes
Request for power off of system-control computer made to Tuner/FL microcomputer
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
Yes
*1
"CPRM ERR" displayed on FL display
Is starting/ID check of HDD OK?
No
Yes
*1
"HDD ERR" displayed on FL display
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Repair required?
No
Yes
Repair process
Playback requested?
No
Yes
Playback
Stop

*1: If both the drive ID check and starting/ID check of HDD failed, "CPRM ERR" is first displayed on FL display.

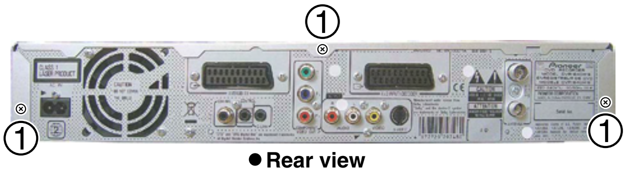
7.1.13 DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
Note 3: For performing the diagnosis shown below, the following jigs for service is required:
- Emergency disc ejection rod (GGF1529)
- Flexible cable for service (GGD1478), (VKP2291)

Diagnosis

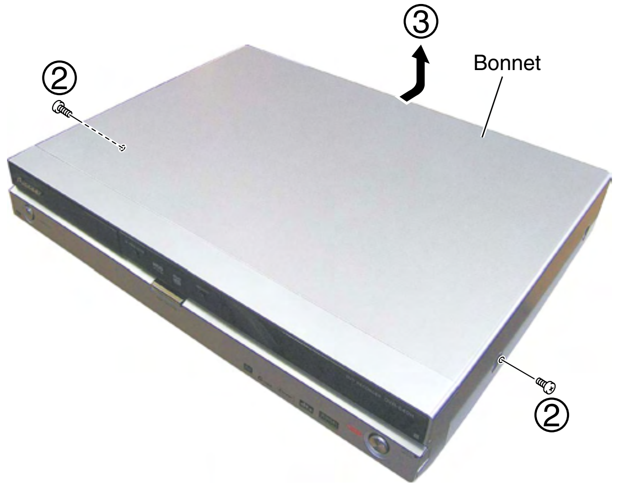
1 Bonnet

① Remove the three screws.



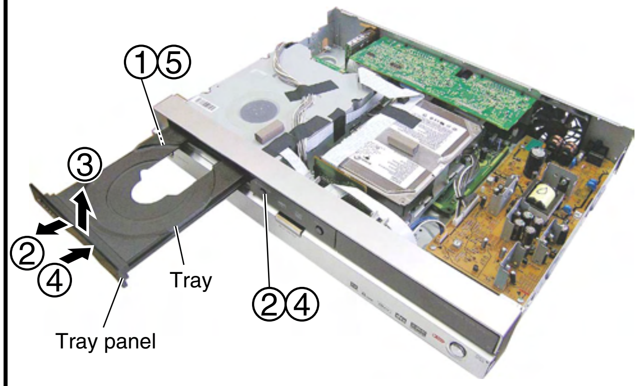
● **Rear view**

② Remove the two screws.
③ Remove the bonnet.



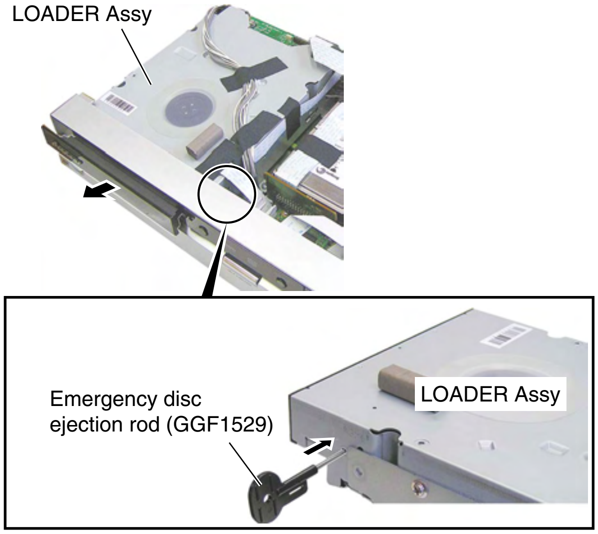
2 Tray Panel

① Press the ⏻ STANDBY/ON button to turn on the power.
② Press the ⏏ OPEN/CLOSE button to open the tray.
③ Remove the tray panel.
④ Press the ⏏ OPEN/CLOSE button to close the tray.
⑤ Press the ⏻ STANDBY/ON button to turn off the power.



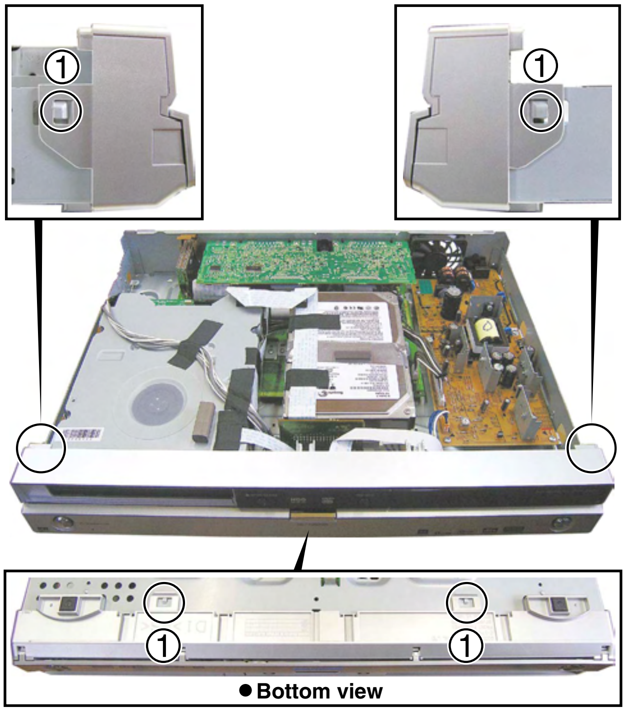
● **How to open the tray when the power cannot be turned on**

When the tray cannot be opened because the power cannot be turned on, it can be opened using the emergency disc ejection rod (GGF1529). (A long, thin rod about 1 mm in diameter can be used in place of the rod.)



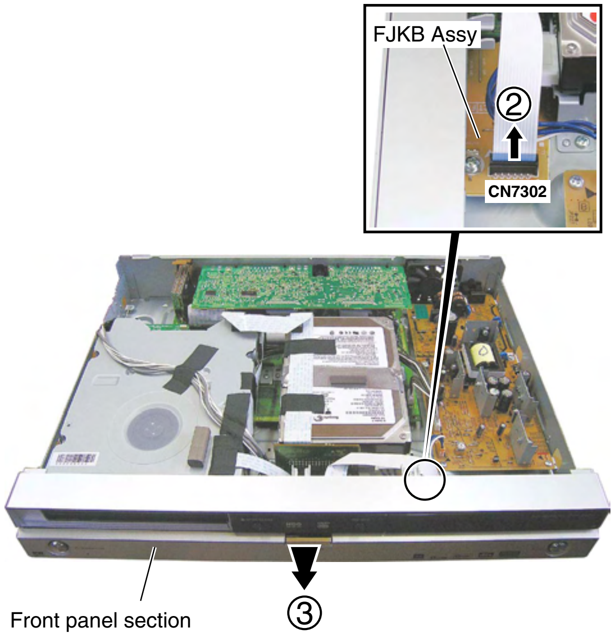
3 Front Panel Section

① Unhook the four hooks.


①
①
①
①
● Bottom view

② Disconnect the one flexible cable.

③ Remove the front panel section.


FJKB Assy
②
CN7302
Front panel section
③

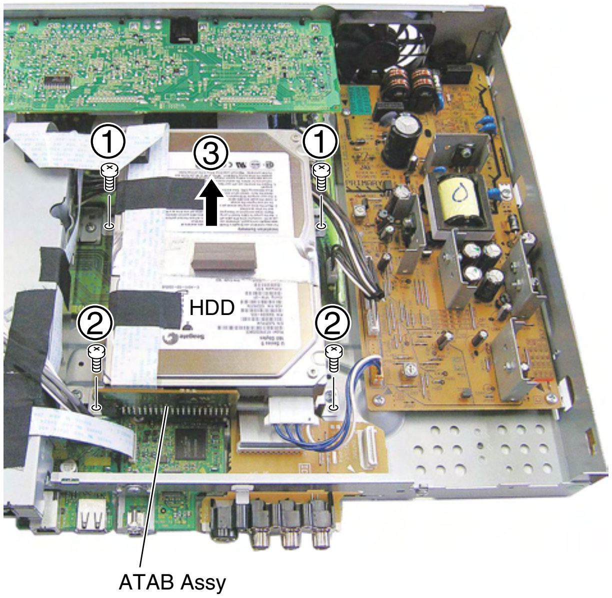
4 HDD and LOADER Assy

• HDD

① Remove the two screws.

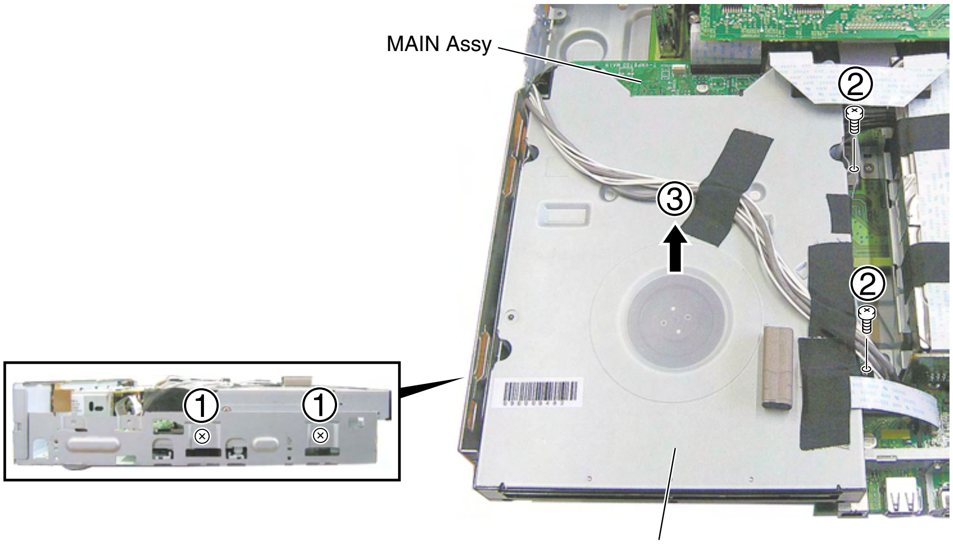
② Remove the two screws.

③ Remove the HDD with the ATAB Assy and the HDD stay.
(Disconnect cables, as required.)


①
③
①
HDD
②
②
ATAB Assy

• LOADER Assy

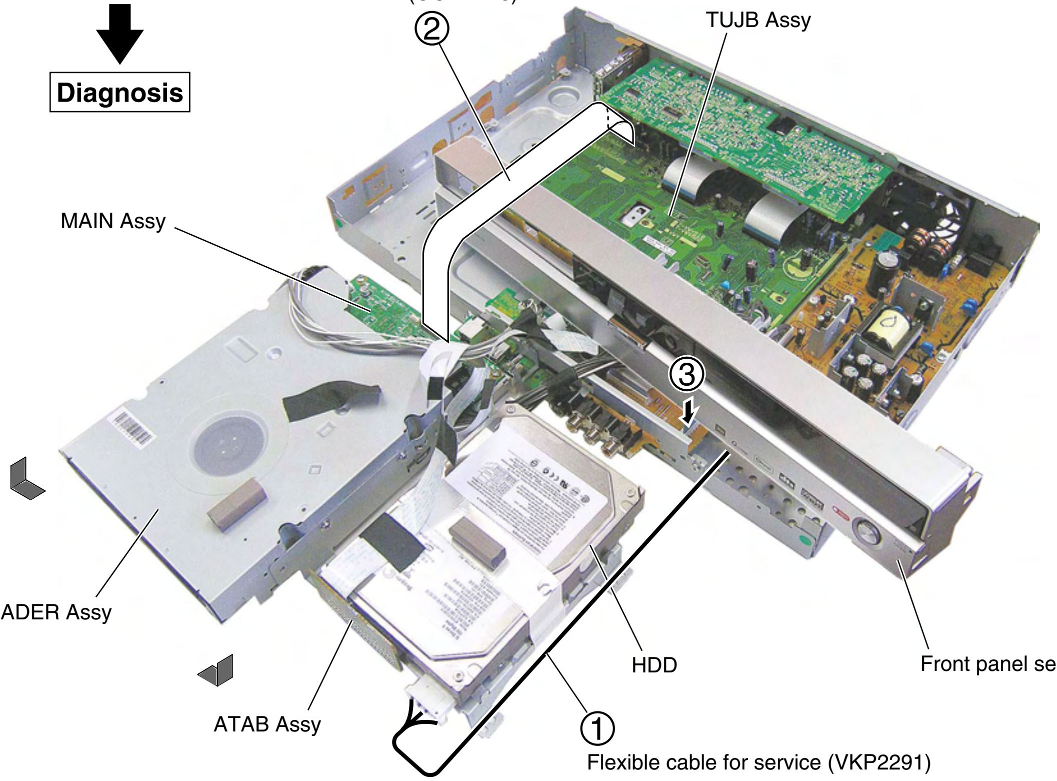
① Remove the two screws.
② Remove the two screws.
③ Remove the LOADER Assy.
(Disconnect cables, as required.)


MAIN Assy
②
③
②
①
①
LOADER Assy

5 Diagnosis

① Connect the flexible cable for service.
② Connect the flexible cable for service.
③ Reassembling the front panel section.
④ Arrange the unit as shown in the photo below.

Diagnosis

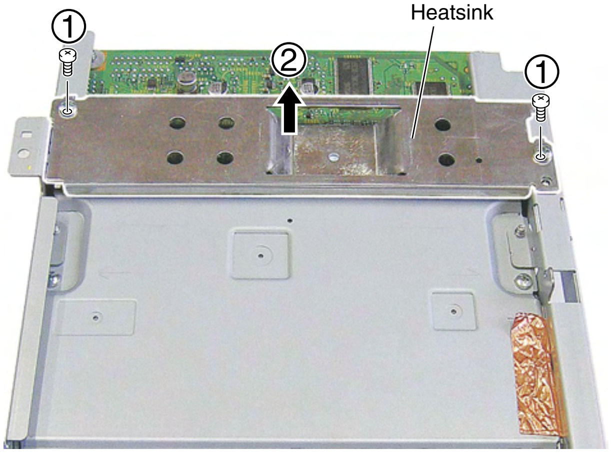

Flexible cable for service
(GGD1478)
②
TUJB Assy
MAIN Assy
③
LOADER Assy
HDD
Front panel section
ATAB Assy
①
Flexible cable for service (VKP2291)

Access to the MAIN Assy, Cleanning the Pickup Lens

• Heatsink

① Remove the two screws.

② Remove the heatsink.

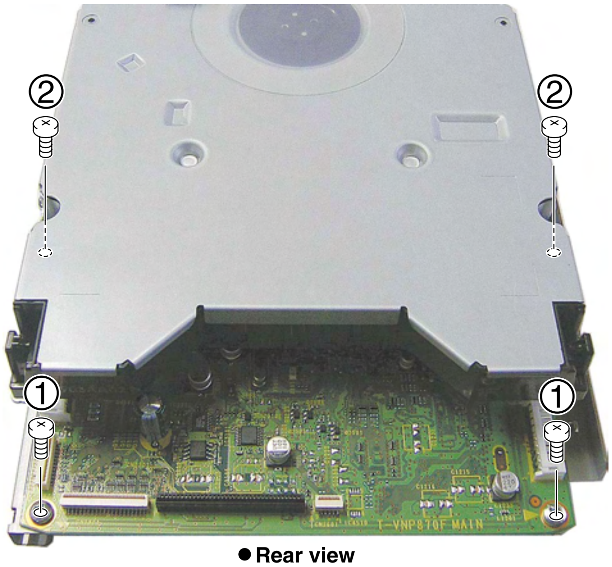

①
②
①
Heatsink

● Bottom view

• Writer Stay L and R

① Remove the two screws.

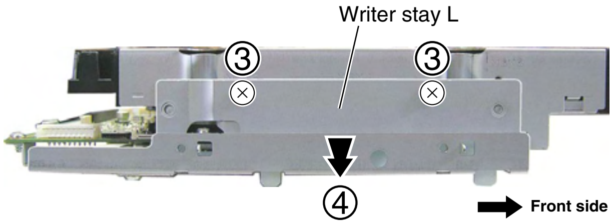
② Remove the two screws.


②
②
①
①
T-VNP870F MAIN

● Rear view

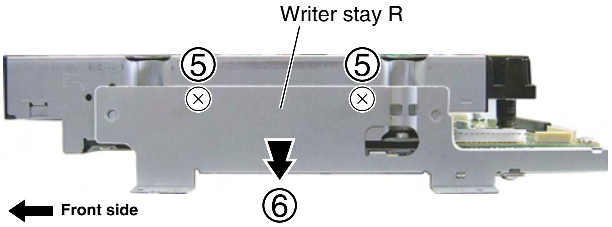
③ Remove the two screws.

④ Remove the writer stay L.


Writer stay L
③
③
④
Front side

⑤ Remove the two screws.

⑥ Remove the writer stay R.

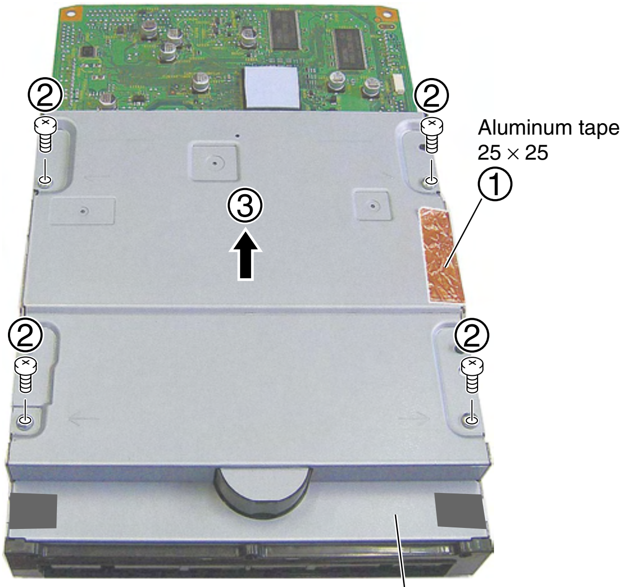

Writer stay R
⑤
⑤
⑥
Front side

• Low Case U11 and UP Case S

① Remove the aluminum tape 25 × 25.

② Remove the four screws.

③ Remove the low case U11.

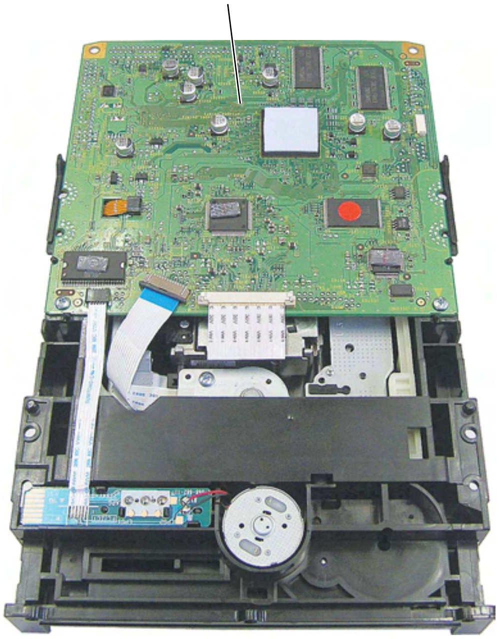


②
②
Aluminum tape
25 × 25
①
③
②
②

● **Bottom view**

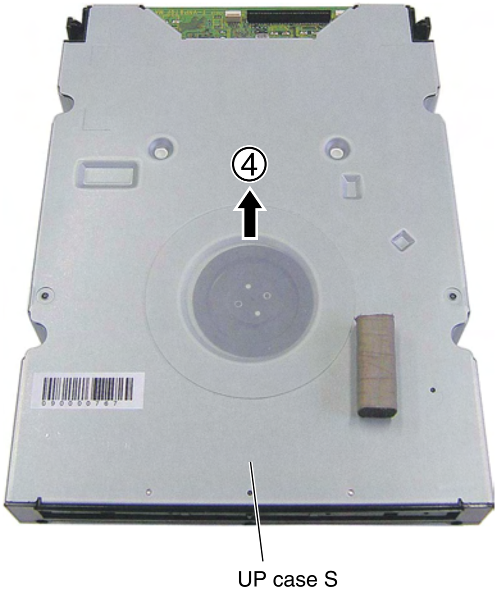
Low case U11

MAIN Assy



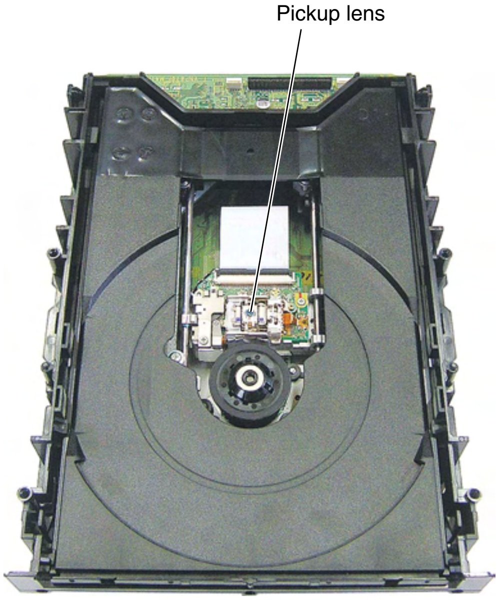
● **Bottom view**

④ Remove the UP case S.



Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008


Pickup lens

7.2 IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● List of IC

PMC006A8, UPD61272F1-107KA3A, PCA9557PW, TDOTG242-0F0C8, UPD72893BF1-FN3, BH7236AF

■ PMC006A8 (TUJB ASSY : IC101)

- TUNER Microcomputer

● Pin Function

No.	Mark	Pin Name	I/O	Pin Function
1	PA3/SO8	FLDATA	O	Communication line with FL driver From tuner controller to FL driver
2	PA4/SI8/SB8	FLSTB	O	Communication strobe signal with FL driver
3	PA5/SCK8	FLCLK	O	Communication clock with FL driver
4	P70/INT0/T0LCP	WDT	I	WDT for microcomputer runaway detection RC is external connection. H: Forced reset
5	P71/INT1/T0HCP	ACDET	I	Existence detection of AC power Level interrupt
6	P72/INT2/T0IN/T0LCP	HS_MTOT	I	System controller communication handshake From system controller to Tuner controller
7	P73/INT3/T0IN/T0HCP	IR	I	Pulse input of the remote control unit
8	RES#	XTRESET	I	Reset input
9	XT1	XT1	I	Sub clock connection 32.768kHz
10	XT2	XT2	O	Sub clock connection
11	VSS1	GND	–	Ground
12	CF1	CF1	I	Main clock connection 15MHz
13	CF2	CF2	O	Main clock connection
14	VDD1	VDD1	–	Power supply
15	P80/AN0	MODEL1	AI	Input 1 for destination judgment
16	P81/AN1	MODEL2	AI	Input 2 for destination judgment
17	P82/AN2	KEY1	AI	Main unit key input 1
18	P83/AN3	KEY2	AI	Main unit key input 2
19	P84/AN4	KEY3	AI	Main unit key input 3
20	P85/AN5	AGC	AI	AGC voltage input from the tuner For simple check
21	P86/AN6	BATTERY	AI	Input for battery voltage check Can measure only during 5V operation
22	P87/AN7	FUNC	AI	SCART Function signal input
23	P10/SO0	SDET3	I	Plug detection of S terminal 3
24	P11/SI0/SB0	SDET2	I	Plug detection of S terminal 2
25	P12/SCK0	SDET1	I	Plug detection of S terminal 1
26	P13/SO1	AVLOUT	O	NexTViewLink output signal Negative logic Reverse on the SCART terminal
27	P14/SI1/SB1	SDA	O/D	IIC communication (data)
28	P15/SCK1	SCL	O/D	IIC communication (clock)
29	P16/T1PWML	XSYSRST	O	IC reset signal of whole system
30	P17/T1PWMH/BUZ	TUDET	I	The old and the new distinction of the tuner pack L: New tuner, H: Old tuner
31	PE0/AN12	MUTEV	O	CVBS for video driver IC and Y/C mute signal L: Mute, H: Release Fix to L because mute does not control.
32	PE1/AN13	IRB_EN	I	IR blaster function valid selection Open: IR blaster invalidity, GND: IR blaster is valid
33	PE2/AN14	AMUTE2	O	Audio mute signal of output stage Negative logic H: Release, L: Mute
34	PE3/AN15	SELV1	O	Input switch of video selector INSEL 1 of LA73031
35	PE4	SELV2	O	Input switch of video selector INSEL 2 of LA73031
36	PE5	SELV3	O	Input switch of video selector INSEL 3 of LA73031
37	PE6	YVSEL	O	CVBS or Y/C switch of video selector YOUT-SEL of LA73031
38	PE7	SWSTBY	O	Standby mode switch of video selector Fix to L output because the standby mode is not used.
39	VSS4	GND	–	Ground
40	VDD4	VDD4	–	Power supply

No.	Mark	Pin Name	I/O	Pin Function
41	PF0	LET/FUNC_ON	O	Letter-box output superimposed signal Function output signal for Europe model
42	PF1	SQU	O	Squeeze output superimposed signal
43	PF2	CONDET	I	Electric discharge detection of capacitor for power supply backup Readout after cold-start immediately. If it was L, reduce the voltage.
44	PF3	S1	O	S1/S2 switching signal
45	PF4/IRP	IROUT	O	Pulse output for IR blaster
46	PF5	P_SAVE2	O	Power save mode switch of HA118326
47	PF6	PSMUTE	O	Audio mute control of SCART
48	PF7	XAVLTH	O	Through switch of AV.Link communication line
49	SI2P0/SO2	SO2	O	SIO2 transmission Not used.
50	SI2P1/SI2/SB2	SI2	O	SIO2 reception Not used.
51	SI2P2/SCK2	SCK2	O	SIO2 communication clock Not used.
52	SI2P3/SCK20	RFTHRU	O	RF through switch of the tuner Control with the main unit setting during standby.
53	PWM1	NC	O	Non connection
54	PWM0	FANCTRL	O	Radiation of heat fan rotating speed control H: Top speed, L: Stop Intermediate speed realizes by PWM
55	VDD2	VDD2	–	Power supply
56	VSS2	GND	–	Ground
57	P00	P_CONT2	O	Power supply control of the main board For controlling 2.5V and 3.3V
58	P01	MUTECTL	O	Mute invalidity control Port to suppress last stage mute
59	P02	EPGEXT	O	Equalizer switch of slicer input video
60	P03	TUON	O	Power supply control of the tuner section There is a case to turn on the power during standby independently.
61	P04	SWVION	O	Power supply control of Japan/North America video system Non connection in Europe and General
62	P05/CKO	P_CONT	O	Power supply control of the whole system
63	P06/T6O	FLPON	O	Power supply control of the FL tube
64	P07/T7O	XP_SAVE	O	Power supply control of Europe video system Set to SWVION on the source.
65	P20/INT4/T1IN/T0LCP/T0HCP/INT6/T0LCP1/SSGI0	STATCHG	I	Multiplex status change detection of MSP D_CTR_I/O_1 of MSP
66	P21/INT4/T1IN/T0LCP/T0HCP	J_CLOCK	I	Input audio for Just Clock Pulse input of the tuner audio
67	P22/INT4/T1IN/T0LCP/T0HCP/HCTR	CSYNCIN	I	C-Sync for Auto-Rec
68	P23/INT4/T1IN/T0LCP/T0HCP	XCHECKER	I	Unit checker mounting distinction
69	P24/INT5/T1IN/T0LCP/T0HCP/INT7/T0HCP1/SSGI1	MRST	I	Main board power failure detection Edge interrupt
70	P25/INT5/T1IN/T0LCP/T0HCP	AVLIN	I	NexTViewLink input line
71	P26/INT5/T1IN/T0LCP/T0HCP	X525P	I	525P output signal from the system controller Not used.
72	P27/INT5/T1IN/T0LCP/T0HCP	BLANKIN	I	BLANK signal input of the SCART
73	P30/PWM4	NC	O	Non connection
74	P31/PWM5	TU_DCCON	O	DC/DC converter For +32V generation 200kHz, 2(H): PWM output of 1 (L)
75	P32/UTX1	TXD1	O	Transmission for RS-232C terminal
76	P33/URX1	RXD1	I	Reception for RS-232C terminal
77	P34/UTX2	TXD2	O	UART2 transmission Not used.
78	P35/URX2	RXD2	O	UART2 reception Not used.
79	P36	HS_TTOM	O	System controller communication handshake From tuner controller to system controller
80	VDDODA	VDDODA	–	Power supply

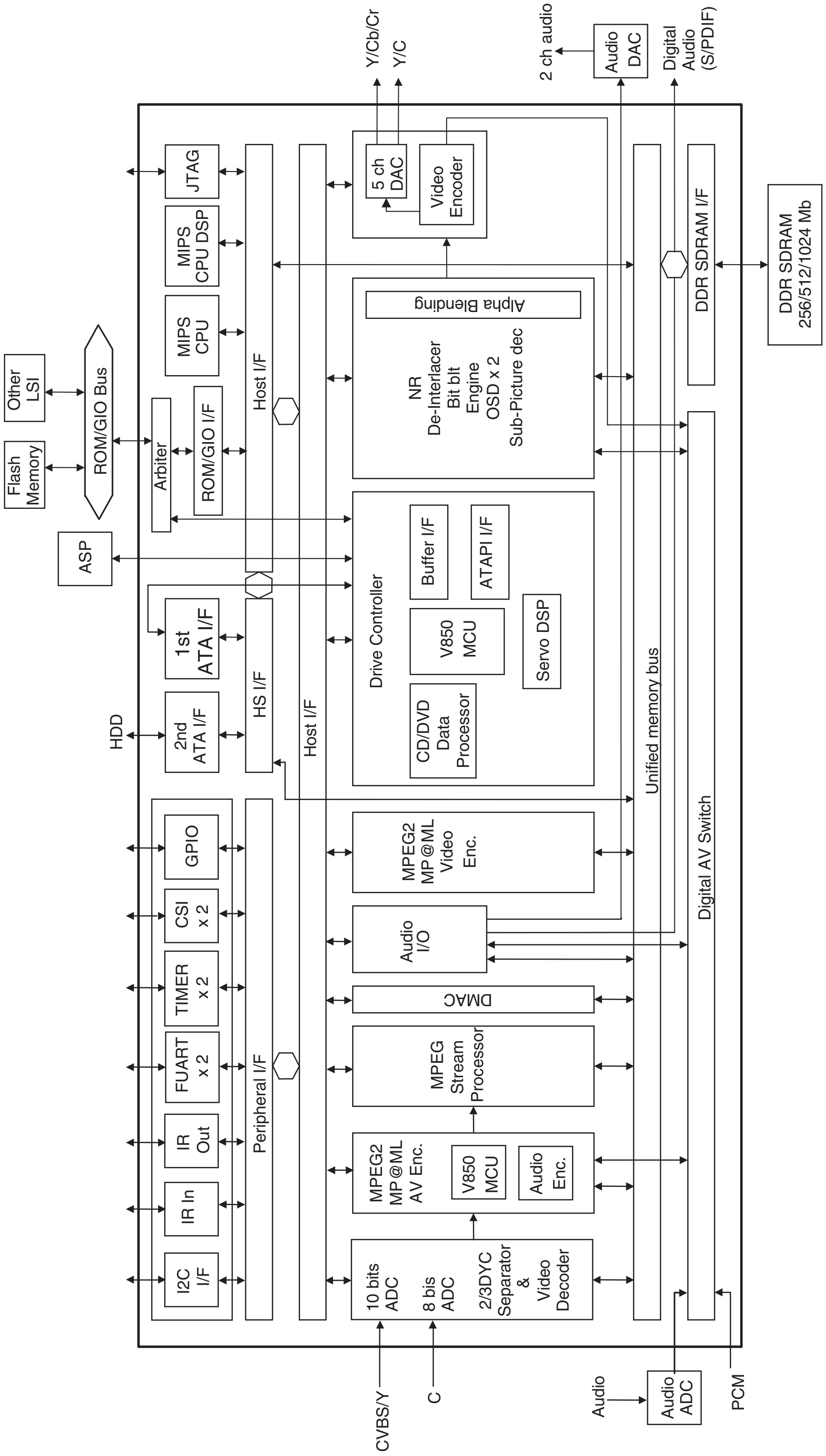
No.	Mark	Pin Name	I/O	Pin Function
81	PB6/CVD/CSYNC	CVBSIN	I	Input video for data slicer 1.0Vpp
82	VSSVCO	GND	–	Ground
83	PB4/FILTSLC	FILTSLC	I	External filter for slicer PLL
84	VDDVCO	VDDVCO	–	Power supply
85	PB2	NC	O	Non connection
86	PB1	NC	O	Non connection
87	PB0/DS1FLD	NC	O	Non connection
88	VSS3	GND	–	Ground
89	VDD3	VDD3	–	Power supply
90	PC7/DBGP2	DBGP2	O/D	Control port for on-chip debugger
91	PC6/DBGP1	DBGP1	O/D	Control port for on-chip debugger
92	PC5/DBGP0	DBGP0	O/D	Control port for on-chip debugger
93	PC4/AN11	C/N	AI	C/N detection of BS-IF
94	PC3/AN10	BS15IN	I	Antenna power supply detection of the BS-OUT terminal There is power supply with L. There is no power supply with H
95	PC2/AN9	BS15SRT	I	Antenna power supply short-circuit detection of the BS-IN terminal L: Short-circuit, H: Normal
96	PC1/AN8	BS15ON	O	Antenna power supply control to the BS-IN terminal L: Power OFF, H: Power ON
97	PC0/OCSYNC	P_SAVEBS	O	BS RF through control L: Not through, H: Through
98	PA0/SO7	SD_TTOM	O	System controller communication data line From tuner controller to system controller
99	PA1/SI7/SB7	SD_MTOT	I	System controller communication data line From system controller to tuner controller
100	PA2/SCK7	SCK_MTOT	I	System controller communication clock From system controller to tuner controller

UPD61272F1-107KA3A (MAIN ASSY : IC1001)

(EMMA2RFE)

- DVDR IC

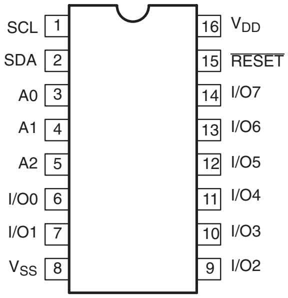
BLOCK DIAGRAM


Y/Cb/Cr
Y/C
2 ch audio
Audio DAC
Digital Audio (S/PDIF)
JTAG
MIPS CPU DSP
MIPS CPU
Host I/F
5 ch DAC
Video Encoder
Alpha Blending
NR
De-Interlacer
Bit blt
Engine
OSD x 2
Sub-Picture dec
DDR SDRAM I/F
DDR SDRAM 256/512/1024 Mb
Other LSI
Flash Memory
ROM/GIO Bus
Arbiter
ROM/GIO I/F
ASP
Drive Controller
Buffer I/F
ATAPI I/F
V850 MCU
Servo DSP
CD/DVD Data Processor
1st ATA I/F
2nd ATA I/F
HS I/F
HDD
Host I/F
Unified memory bus
Digital AV Switch
GPIO
CSI x 2
TIMER x 2
FUART x 2
IR Out
IR In
I2C I/F
Peripheral I/F
MPEG2 MP@ML Video Enc.
Audio I/O
DMAC
MPEG Stream Processor
MPEG2 MP@ML AV Enc.
V850 MCU
Audio Enc.
10 bits ADC
8 bis ADC
2/3DYC Separator & Video Decoder
CVBS/Y
C
Audio
Audio ADC
PCM

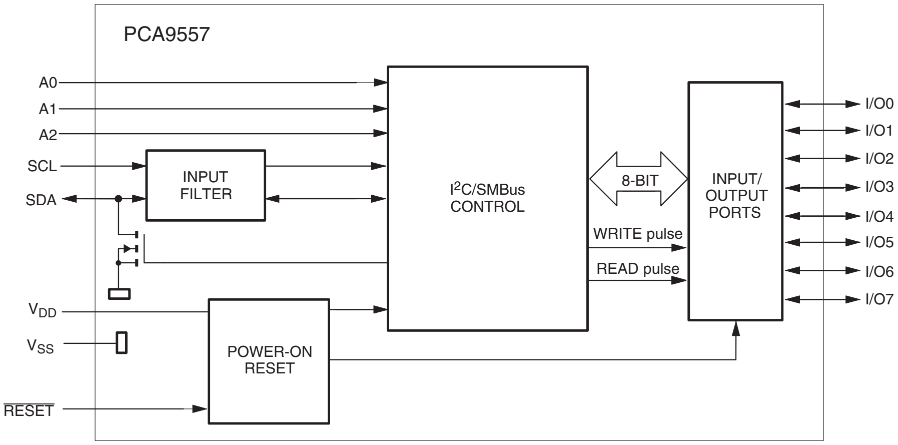
PCA9557PW (MAIN ASSY : IC3802)

- 8Bit IIC to PARA IC

PIN LAYOUT


SCL 1
SDA 2
A0 3
A1 4
A2 5
I/O0 6
I/O1 7
V_{SS} 8
16 V_{DD}
15 $\overline{RESET}$
14 I/O7
13 I/O6
12 I/O5
11 I/O4
10 I/O3
9 I/O2

BLOCK DIAGRAM


PCA9557
A0
A1
A2
SCL
SDA
INPUT FILTER
I²C/SMBus CONTROL
8-BIT
WRITE pulse
READ pulse
INPUT/ OUTPUT PORTS
I/O0
I/O1
I/O2
I/O3
I/O4
I/O5
I/O6
I/O7
V_{DD}
V_{SS}
POWER-ON RESET
$\overline{RESET}$

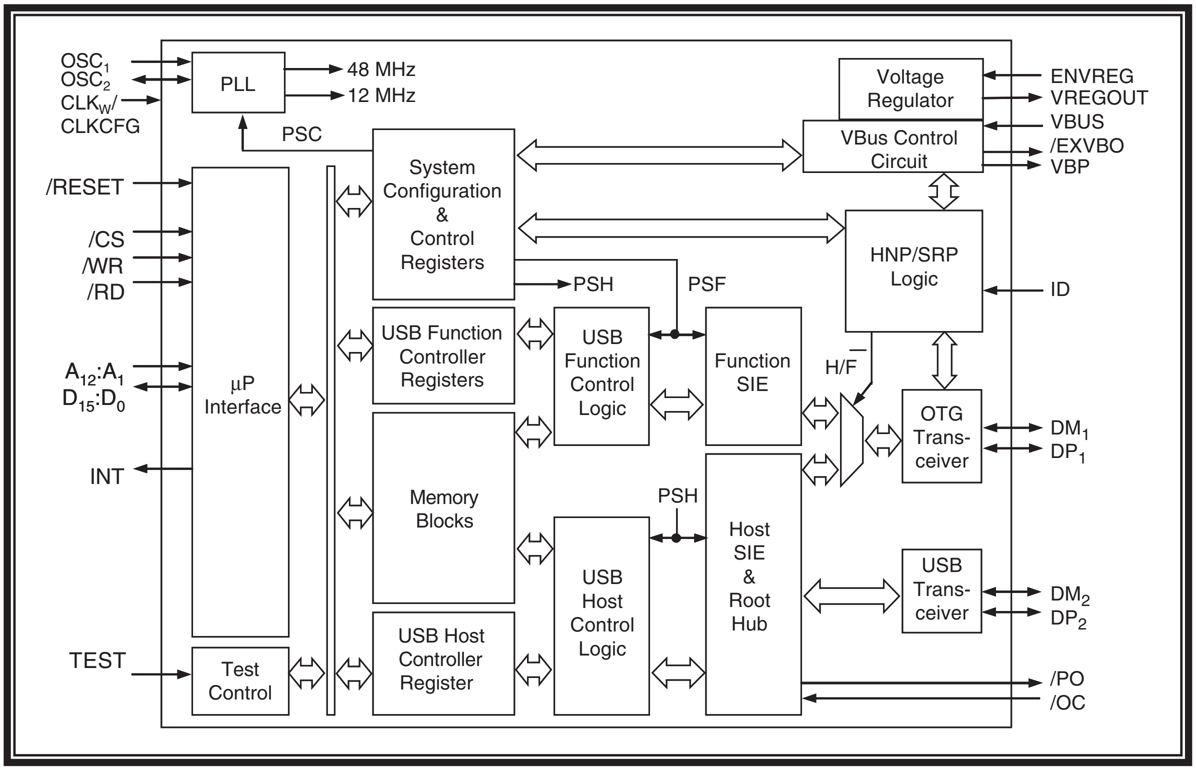
PIN FUNCTION

Pin No.	Name	Function
1	SCL	Serial clock line
2	SDA	Serial data line
3	A0	Address input 0
4	A1	Address input 1
5	A2	Address input 2
6	I/O0	I/O0 (open drain)
7	I/O1	I/O1
8	V_{SS}	Supply ground
9±14	I/O2±I/O7	I/O2 to I/O7
15	$\overline{RESET}$	Active-LOW reset input
16	V_{DD}	Supply voltage

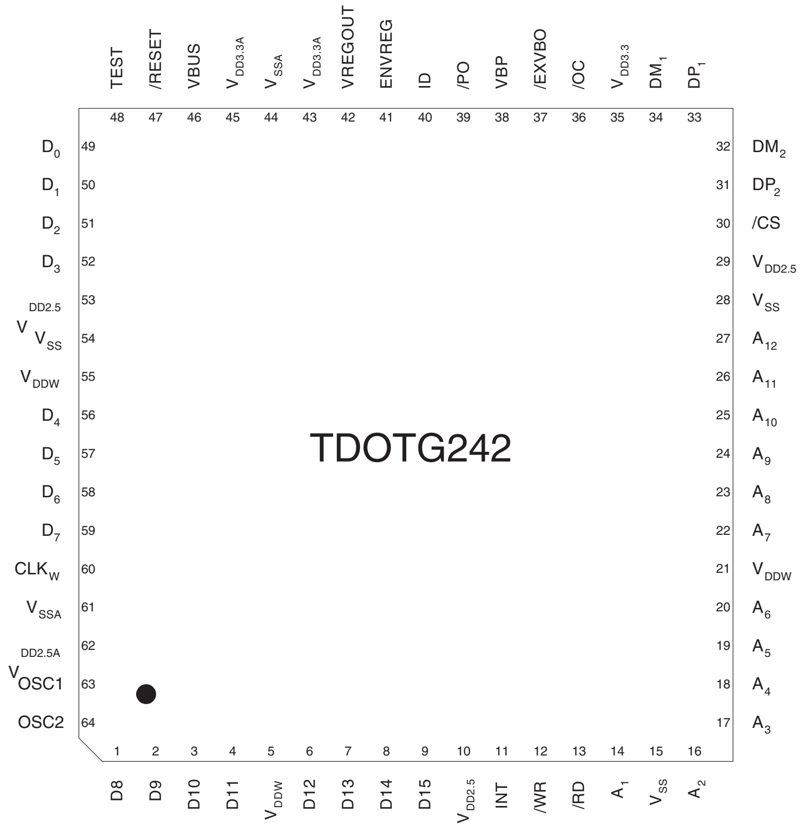
TDOTG242-0F0C8 (MAIN ASSY : IC5701)

- USB Controller IC

BLOCK DIAGRAM


OSC1
OSC2
CLKW/
CLKCFG
PLL
48 MHz
12 MHz
PSC
/RESET
/CS
/WR
/RD
A12:A1
D15:D0
INT
TEST
µP Interface
Test Control
System Configuration & Control Registers
USB Function Controller Registers
Memory Blocks
USB Host Controller Register
PSH
PSF
USB Function Control Logic
Function SIE
USB Host Control Logic
PSH
Host SIE & Root Hub
Voltage Regulator
VBus Control Circuit
HNP/SRP Logic
H/F
OTG Trans-ceiver
USB Trans-ceiver
ENVREG
VREGOUT
VBUS
/EXVBO
VBP
ID
DM1
DP1
DM2
DP2
/PO
/OC

PIN LAYOUT


TDOTG242
TEST 48
/RESET 47
VBUS 46
VDD3.3A 45
VSSA 44
VDD3.3A 43
VREGOUT 42
ENVREG 41
ID 40
/PO 39
VBP 38
/EXVBO 37
/OC 36
VDD3.3 35
DM1 34
DP1 33
D0 49
D1 50
D2 51
D3 52
VDD2.5 53
VSS 54
VDDW 55
D4 56
D5 57
D6 58
D7 59
CLKW 60
VSSA 61
VDD2.5A 62
OSC1 63
OSC2 64
DM2 32
DP2 31
/CS 30
VDD2.5 29
VSS 28
A12 27
A11 26
A10 25
A9 24
A8 23
A7 22
VDDW 21
A6 20
A5 19
A4 18
A3 17
D8 1
D9 2
D10 3
D11 4
VDDW 5
D12 6
D13 7
D14 8
D15 9
VDD2.5 10
INT 11
/WR 12
/RD 13
A1 14
VSS 15
A2 16

PIN NAME

1	D_8	17	A_3	33	DP_1	49	D_0
2	D_9	18	A_4	34	DM_1	50	D_1
3	D_{10}	19	A_5	35	$V_{DD3.3}$	51	D_2
4	D_{11}	20	A_6	36	/OC	52	D_3
5	V_{DDW}	21	V_{DDW}	37	/EXVBO	53	$V_{DD2.5}$
6	D_{12}	22	A_7	38	VBP	54	V_{SS}
7	D_{13}	23	A_8	39	/PO	55	V_{DDW}
8	D_{14}	24	A_9	40	ID	56	D_4
9	D_{15}	25	A_{10}	41	ENVREG	57	D_5
10	$V_{DD2.5}$	26	A_{11}	42	VREGOUT	58	D_6
11	INT	27	A_{12}	43	$V_{DD3.3A}$	59	D_7
12	/WR	28	Vss	44	V_{SSA}	60	CLK_W
13	/RD	29	$V_{DD2.5}$	45	$V_{DD3.3A}$	61	V_{SSA}
14	A_1	30	/CS	46	VBUS	62	$V_{DD2.5A}$
15	V_{SS}	31	DP_2	47	/RESET	63	OSC_1
16	A_2	32	DM_2	48	TEST	64	OSC_2

OTG242LP pin assignment for the 64-pin LQFP

- **PIN FUNCTION**

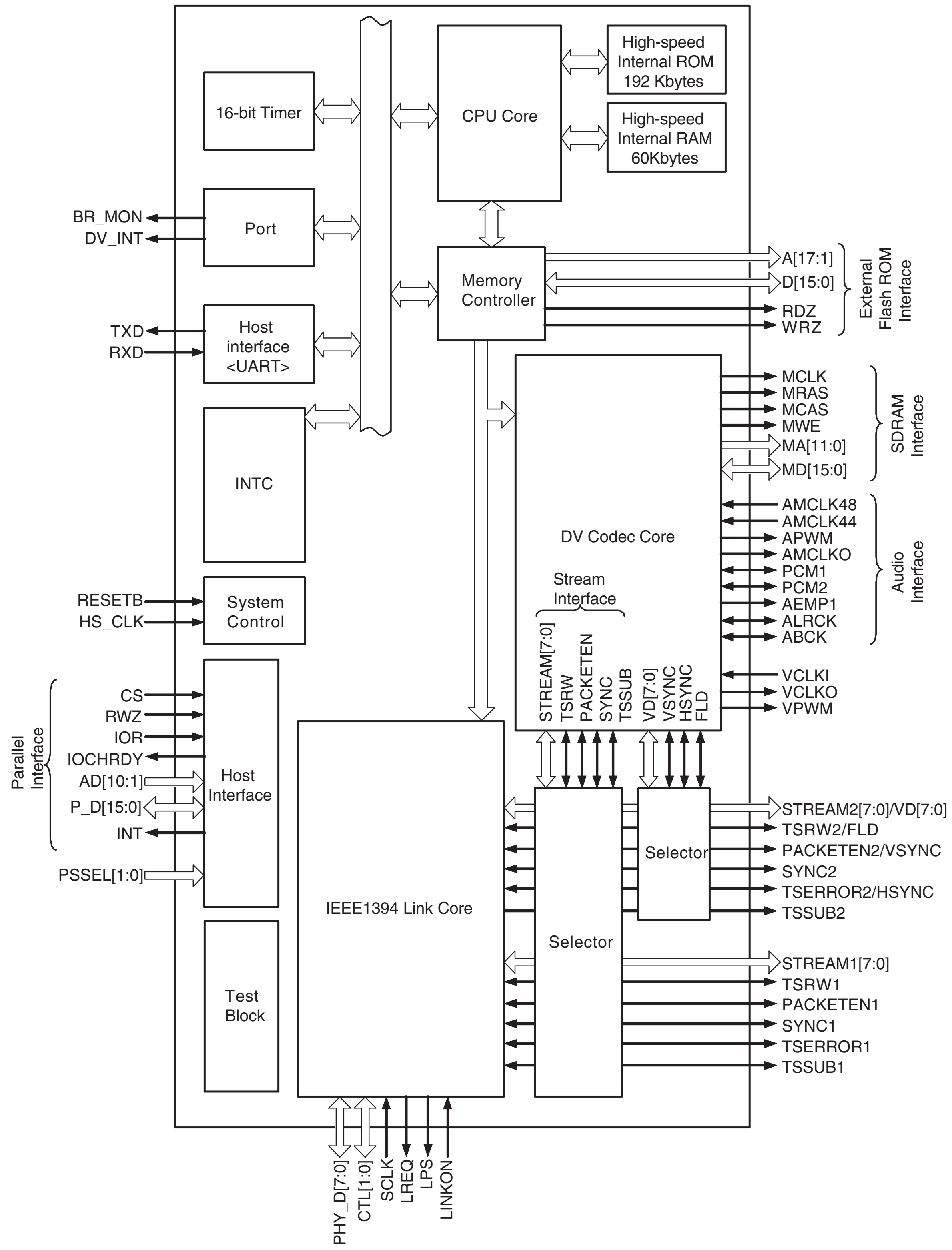
Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
OSC_1	I		Terminal for OSC.
OSC_2	IO		
/RESET	I	L	Hardware reset.
/CS	I	L	Chip select.
/WR	I	L	Write strobe.
/RD	I	L	Read strobe.
A_{12}:A_1	I		Address bus for an addressing space of 8K bytes.
D_{15}:D_0	IO		16-bit data bus.
TEST	I	H	Factory test mode.
/EXVBO	O	L	Turn on/off the external V_{BUS} (5V) for OTG operation (1: V_{BUS} off; 0: V_{BUS} on).
/PO	O	L	Turn on/off the gang power for all Host ports.
/OC	I	L	Over current condition indicator for gang powered Host ports.
INT[1]	O/WO	PL	Interrupt to the MCU.
ID	I		Connected to the ID pin of the mini-AB connector (Port 1) for OTG applications.
DM_1, DP_1	IO		Data lines for Port 1, which may serve as a USB Host, or OTG port.

Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
DM_2, DP_2	IO		Data lines for Port 2, a dedicated USB Host port.
VBUS	I		V_{BUS} input sampled during HNP/SRP operations by the OTG port.
VBP	IO	H	V_{BUS} pulsing control. This pin is used only when Port 1 is an OTG port for a B-DEVICE.
CLK_W	I		This pin is available only in the QFP package
CLKCFG	I		This pin is available only in the BGA package
ENVREG	I		Enables the internal Voltage Regulator if asserted.
VREGOUT	PW		Internal Voltage Regulator output of 2.5V
$V_{DD3.3A}$	PW		Analog +3.3V
$V_{DD2.5A}$	PW		Analog +2.5V
V_{SSA}	PW		Analog ground.
$V_{DD2.5}$	PW		Digital +2.5V
V_{DDW}	PW		Wide-range IO +3.3V or +2.5V.
V_{SS}	PW		Digital/Wide-range IO ground.
NC	PS		No connection. These pins should be left floating.

■ UPD72893BF1-FN3 (DVJB ASSY : IC102)

- DV-CODEC IC

● BLOCK DIAGRAM


16-bit Timer
CPU Core
High-speed Internal ROM 192 Kbytes
High-speed Internal RAM 60Kbytes
BR_MON
DV_INT
Port
Memory Controller
A[17:1]
D[15:0]
RDZ
WRZ
External Flash ROM Interface
TXD
RXD
Host interface <UART>
MCLK
MRAS
MCAS
MWE
MA[11:0]
MD[15:0]
SDRAM Interface
INTC
DV Codec Core
AMCLK48
AMCLK44
APWM
AMCLKO
PCM1
PCM2
AEMP1
ALRCK
ABCK
Audio Interface
Stream Interface
RESETB
HS_CLK
System Control
STREAM[7:0]
TSRW
PACKETEN
SYNC
TSSUB
VD[7:0]
VSYNC
HSYNC
FLD
VCLKI
VCLKO
VPWM
Parallel Interface
CS
RWZ
IOR
IOCHRDY
AD[10:1]
P_D[15:0]
INT
PSSEL[1:0]
Host Interface
IEEE1394 Link Core
Selector
Selector
STREAM2[7:0]/VD[7:0]
TSRW2/FLD
PACKETEN2/VSYNC
SYNC2
TSERROR2/HSYNC
TSSUB2
STREAM1[7:0]
TSRW1
PACKETEN1
SYNC1
TSERROR1
TSSUB1
Test Block
PHY_D[7:0]
CTL[1:0]
SCLK
LREQ
LPS
LINKON

PIN LAYOUT

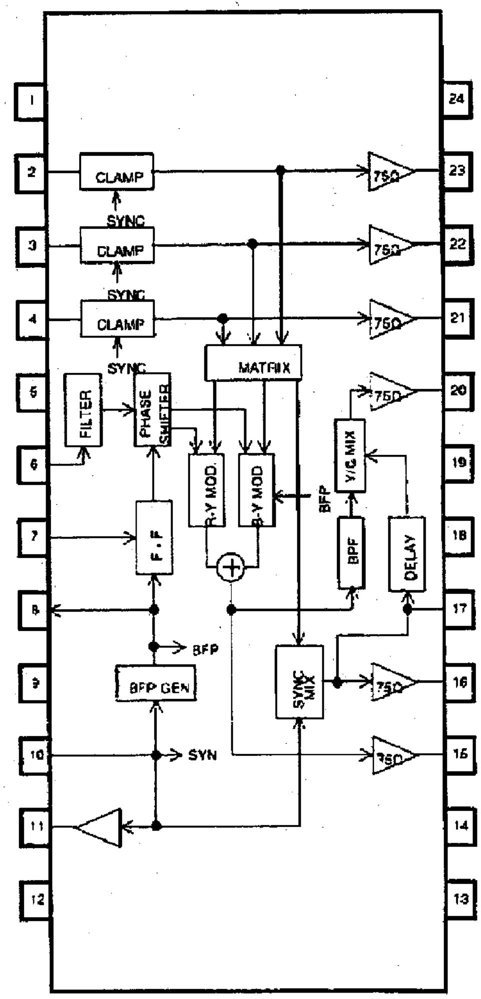
- 208-pin plastic FBGA (15x15)

17	A3	A2	A1	IC(PL)	3.3GND	2.5GND	3.3VDD	P_D9	P_D5	P_D2	INT	IOR	AD10	AD6	AD4	AD2	PSSEL1
16	A5	A4	BR_MON	IC(PH)	IC(PH)	P_D15	P_D12	P_D8	3.3GND	3.3VDD	IOCHRDY	RWZ	AD9	AD5	AD3	AD1	PSSEL0
15	A7	A6	IC (PL)	RXD	IC(PH)	P_D14	P_D11	P_D7	P_D4	P_D1	IC(O)	2.5VDD	AD8	AMCLKO	APWM	AMCLK44	AMCLK48
14	A9	A8	DV_INT	TXD	IC(PH)	P_D13	P_D10	P_D6	P_D3	P_D0	IC(H)	CS	AD7	PCM2	AEMP1	3.3GND	IC(O)
13	A12	A11	3.3VDD	A10										ALRCK	ABCK	3.3VDD	PCM1
12	A15	A14	2.5VDD	A13										MA9	MA10	2.5GND	MA11
11	RDZ	A17	A16	3.3GND										MA5	MA6	MA7	MA8
10	D2	D1	D0	WRZ										MA2	3.3GND	MA3	MA4
9	D6	D5	D4	D3										MCLK	3.3VDD	MA0	MA1
8	3.3GND	3.3VDD	D8	D7										MD15	MWE	MCAS	MRAS
7	D12	D11	D10	D9										MD11	MD12	MD13	MD14
6	D15	2.5GND	D14	D13										MD9	MD10	2.5VDD	3.3GND
5	PLLAGND	PLLAVDD	PLLDVDD	IC(L)										MD6	MD7	3.3VDD	MD8
4	HS_CLK	PLLDGND	RESETB	3.3VDD	3.3GND	CTL0	LPS	STREAM12	STREAM16	TSRW1	PACKETEN2/ VSYNC	SYNC2	STREAM21/ VD1	STREAM25/ VD5	AFS2	MD4	MD5
3	IC (PL)	IC (L)	PHY_D7	PHY_D4	PHY_D1	2.5VDD	LINKON	STREAM13	STREAM17	SYNC1	TSERROR2/ HSYNC	TSSUB2	STREAM22/ VD2	STREAM26/ VD6	VCLKI	MD2	MD3
2	IC (L)	IC (L)	PHY_D6	PHY_D3	PHY_D0	SCLK	STREAM10	STREAM14	PACKETEN1	3.3VDD	3.3GND	2.5GND	STREAM23/ VD3	STREAM27/ VD7	VCLKO	MD1	3.3GND
1	IC (H)	IC (L)	PHY_D5	PHY_D2	CTL1	LREQ	STREAM11	STREAM15T	SERROR1	TSSUB1	TSRW2/ FLD	STREAM20/ VD0	STREAM24/ VD4	AFS13	3.3VDD	VPWM	MD0
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U

BH7236AF (SCRB ASSY : IC2000)

- Color TV Signal Encoder

BLOCK DIAGRAM


1
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9
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11
12
13
14
15
16
17
18
19
20
21
22
23
24
CLAMP
SYNC
CLAMP
SYNC
CLAMP
SYNC
MATRIX
FILTER
PHASE SHIFTER
R-Y MOD.
B-Y MOD
F.F
BFP
BFP GEN
SYN
SYNC MIX
BFP
Y/C MIX
BPF
DELAY
75Ω
75Ω
75Ω
75Ω
75Ω
75Ω

PIN FUNCTION

Terminal No.	Terminal name	Description of terminals	Termina No.	Terminal name	Description of terminals
1	GND1	Ground terminal except 75Ω driver	13	N.C.	No Connection
2	RIN	Analog Red signal input terminal.	14	N.C.	No Connection
3	GIN	Analog Green signal input terminal.	15	COUT	Chroma signal output terminal.
4	BIN	Analog Blue signal input terminal.	16	YOUT	Luminance signal output terminal.
5	N.C.	No Connection	17	YTRAP	Luminance trap filter terminal.
6	SCIN	Color subcarrier input terminal.	18	N.C.	No Connection
7	NT/PAL	Input terminal for the selection of TV format.	19	VCC2	Power supply terminal for 75Ω driver.
8	BFPOUT	Burst timing signal output terminal.	20	VOUT	Composite video output terminal.
9	N.C.	No Connection	21	BOUT	Analog B signal output terminal.
10	SYNCIN	Composite sync input terminal.	22	GOUT	Analog G signal output terminal.
11	SYNCOUT	Composite sync output terminal.	23	ROUT	Analog R signal output terminal.
12	VCC1	Power supply terminal except 75Ω driver.	24	GND2	Ground terminal for 75Ω driver

7.3 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 15°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Landing surface / Falling distance	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm	387	217	200	26
1.0 inch / 25.4 mm	595	457	310	37
2.0 inch / 50.8 mm	1133	600	680	70
4.0 inch / 101.6 mm	1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
  If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurrs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

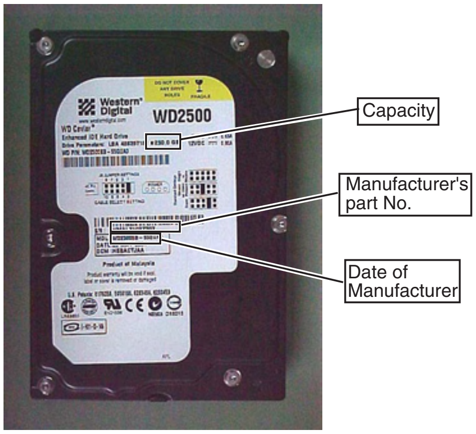
Outline and part No. of the HDDs

*Pioneer's part No. is not stamped.

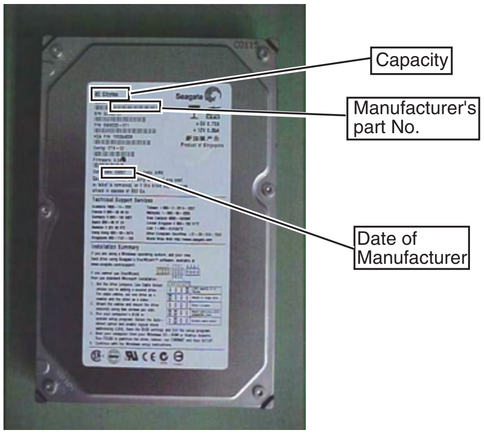
Model Name	Capacity	Western Digital		SEAGATE	
		Pioneer's Part No. (for service)	Manufacture's Part No.	Pioneer's Part No. (for service)	Manufacture's Part No.
DVR-540H-S DVR-640H-AV	160GB	VXF1068	WD1600BB -xxGUCx	VXF1086	ST3160022ACE

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Western Digital(160GB)

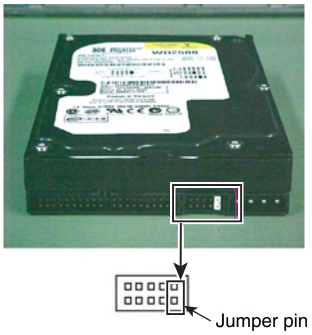

Capacity
Manufacturer's part No.
Date of Manufacturer

Seagate(160G)


Capacity
Manufacturer's part No.
Date of Manufacturer

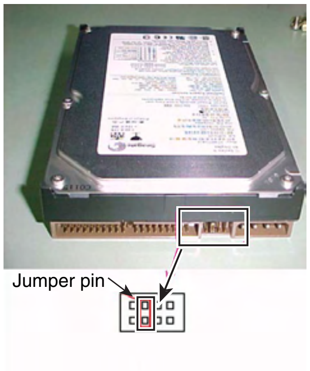
Confirmation of the jumper pin location of the HDD

Western Digital



Setting : Cable Select(CS)

Seagate



Setting : Cable Select(CS)

7.4 DISC/CONTENT FORMAT

	HDD	DVD-R		DVD-RW		DVD+R	DVD +RW	DVD-RAM
Marks used in this manual	HDD	DVD (VR) *1	DVD (Video)	DVD (VR) *1	DVD (Video) *2	DVD+R	DVD+RW	DVD-RAM *13, 16
Logos	HDD HARD DISK DRIVE	DVD R		DVD RW	DVD RW RW 2	RW DVD+R	RW DVD+ReWritable RW High Speed DVD+ReWritable	DVD RAM
Re-recordable / Erasable	●	●*3	●*3	●	●	*3	●*14	●
Editing of recorded programs	●	●	●*4	●	●*4	●*4	●*4	●
Recording of Copy-once protected material	●	●*12		●*12				●*12
Playback in other players/recorders	n/a	*5	●*6	●*7	●*6	● *6, 15	●*8	●*9
Chase play	●							
16:9 and 4:3 program recording	●	●		●				●
Bilingual broadcast recording of both audio channels	● *10, 11	●*11		●*11				●*11

Notes to table

**1 Must be initialized for VR mode recording*
**2 Must be initialized for Video mode recording*
**3 Erasable, but free space does not increase*
**4 Cannot erase sections, edit chapters or use playlist editing*
**5 Must be compatible with DVD-R(VR) playback*
**6 Finalize using this recorder (may not playback in some units)*
**7 Must be compatible with DVD-RW(VR) playback*
**8 Must be compatible with DVD+RW playback*
**9 Must be compatible with DVD-RAM playback*
**10 Only when HDD Recording Format is set to Video Mode Off*
**11 Only when the recording mode is not set to LPCM*
**12 CPRM-compatible discs only*
**13 Take the disc out of the cartridge before use. Only Matsushita and Maxell discs have been tested to work reliably with this recorder. Discs from other makers may become unusable when recorded or edited.*
**14 Erasing a title does not increase the available recording time, nor increase the number of recordable titles left.*
**15 Must be compatible with DVD+R playback*
**16 Depending on the disc, it may have to be initialized before it can be recorded. In this case, initialization will take about 1 hour.*

DVD is a trademark of DVD Format/Logo Licensing Corporation.

Using DVD-R DL/DVD+R DL discs

DVD-R DL (dual-layer) and DVD+R DL (double-layer) discs contain two recordable layers on a single side, giving about 1.8 times the recording capacity of a conventional single-layer disc. This unit can record to both DVD-R DL and DVD+R DL discs.

- If you intend to play DVD-R DL (Video mode) or DVD+R DL discs recorded on this unit on other DVD recorders/players, you must finalize them. (Note that some DVD recorders/players may not play even finalized DL discs.)
- Please read the information provided on the disc packaging carefully before purchasing DVD-R DL/DVD+R DL discs:
- *Confirm the disc version:* Use ver. 3.0 / 2 x to 4 x DVD-R discs.
- *Confirm the recording speed :* DVD-R should be compatible with 2 x or 4 x recording; DVD+R with 2.4 x to 8 x recording.
- This logo indicates that the disc is a DVD-R DL or DVD+R DL disc:

DVD R R DL 4X/2X RW DVD+R DL

- Correct operation has been confirmed for DVD-R DL discs (Ver. 3.0 / 2 x, 4 x) produced by the following manufacturers: Mitsubishi Kagaku Media, Verbatim (as of March 2005).

About DualDisc playback

A DualDisc is a new two -sided disc, one side of which contains DVD content -video, audio, etc. -while the other side contains non-DVD content such as digital audio material.

The non-DVD, audio side of the disc is not compliant with the CD Audio specification and therefore may not play.

It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.

The DVD side of a DualDisc plays in this product. DVD-Audio content will not play.

For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

Other disc compatibility

In addition to DVD, this recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD (and DVD), may be in an unplayable format - see below for further compatibility information.

Audio CD CD-R CD-RW Video CD Super Video CD (Super VCD)

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Readable formats: CD-Audio, Video CD/ Super VCD, ISO 9660 CD-ROM* containing MP3, WMA, JPEG or DivX files.
  * *ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD-Audio and Video CD/Super VCD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 32 kHz, 44.1 kHz or 48 kHz
- Bit-rates: Any (128 Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback:Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8*(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management)[1] file playback: No
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files - do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player for Windows® XP, Windows Media® Player 9 or Windows Media® Player 10 series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

DivX video compatibility

DivX is a compressed digital video format created by the DivX® video codec from DivX, Inc. This recorder can play DivX video files burned on CD-R/RW/ROM discs. Keeping the same terminology as DVD-Video, individual DivX video files are called "Titles." When naming files/titles on a CD-R/RW disc prior to burning, keep in mind that by default they will be played in alphabetical order.

- Official DivX® Certified product.
- Plays all versions of DivX® video (including DivX® 6) with standard playback of DivX® media files.
- File extensions: .avi and .divx (these must be used for the recorder to recognize DivX video files). *Note that all files with the .avi extension are recognized as MPEG4, but not all of these are necessarily DivX video files and therefore may not be playable on this recorder.*
- File structure: Up to 99 folders or 999 files.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.

DivX® VOD content

In order to play DivX VOD (video on demand)

Note

[1] DRM (digital rights management) copy protection is a technology designed to prevent unauthorized copying by restricting playback, etc. of compressed audio files on devices other the PC (or other recording equipment) used to record it. For detailed information, please see the instruction manuals or help files that came with your PC (or other WMA recording equipment) and/or software.

content on this recorder, you first need to register the recorder with your DivX VOD content provider. You do this by generating a DivX VOD registration code, which you submit to your provider.

Some DivX VOD content may only be playable a fixed number of times. When you load a disc containing this type of DivX VOD content, the remaining number of plays is shown on-screen and you then have the option of playing the disc (thereby using up one of the remaining plays), or stopping. If you load a disc that contains expired DivX VOD content (for example, content that has zero remaining plays), the message **Rental Expired** is displayed.

If your DivX VOD content allows an unlimited number of plays, then you may load the disc into your recorder and play the content as often as you like, and no message will be displayed.

Important

- DivX VOD content is protected by a DRM (Digital Rights Management) system. This restricts playback of content to specific, registered devices.
- If you load a disc that contains DivX VOD content not authorized for this recorder, the message **Authorization Error** is displayed and the content will not play.
- Resetting the recorder will not cause you to lose your registration code.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  ** File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:2:2, 4:2:0
- Horizontal resolution: 160 to 5120 pixels
- Vertical resolution: 120 to 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, .jpeg, .jpe, .jif, .jfif (must be used for the recorder to recognize JPEG files - do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time*(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

Dolby Digital

DOLBY
DIGITAL
STEREO CREATOR

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

DTS

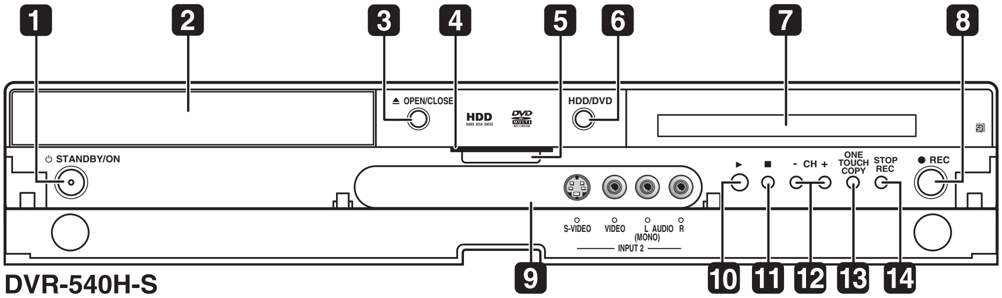
dts®
DIGITAL OUT

“DTS” and “DTS Digital Out” are registered trademarks of Digital Theater Systems, Inc.

8. PANEL FACILITIES

8.1 FRONT SECTION

Front panel


1
2
3
4
5
6
7
8
OPEN/CLOSE
HDD
DVD
HDD/DVD
STANDBY/ON
ONE TOUCH COPY
STOP REC
REC
CH
S-VIDEO
VIDEO
L AUDIO R
(MONO)
INPUT 2
9
10
11
12
13
14

DVR-540H-S

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 Disc tray

3 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

4 HDD / DVD indicators
Indicator lights blue when the hard disk (HDD) is selected; orange when the DVD drive is selected.

5 PAUSE LIVE TV
Press to start recording the current TV channel, but with playback paused, effectively pausing the broadcast.

6 HDD/DVD
Press to switch between HDD and DVD for recording and playback.

7 Front panel display and IR remote sensor

8 ● REC
Press to start recording. Press repeatedly to set the recording time in 30 minute blocks.

9 Front panel inputs

10 ►
Press to start or restart playback.

11 ■
Press to stop playback.

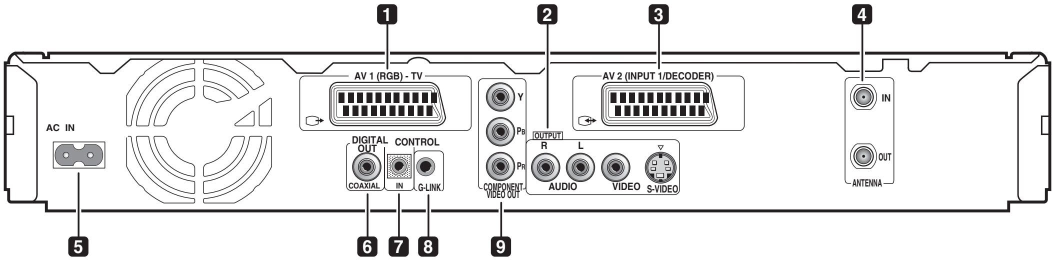
12 CH +/–
Use to change channels, skip chapters/ tracks, etc.

13 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

14 STOP REC
Press to stop recording.

8.2 REAR PANEL and FRONT PANEL section

Rear panel


1
2
3
4
AV 1 (RGB) - TV
AV 2 (INPUT 1/DECODER)
AC IN
DIGITAL OUT
CONTROL
COAXIAL
IN
G-LINK
Y
PB
PR
COMPONENT VIDEO OUT
OUTPUT
R
L
AUDIO
VIDEO
S-VIDEO
IN
OUT
ANTENNA
5
6
7
8
9

1 AV1(RGB)-TV AV connector
Audio/video output SCART-type AV connector for connecting to a TV or other equipment with a SCART connector. The video output is switchable between video, S-video and RGB.

2 OUTPUT
Stereo analog audio, video and S-video outputs for connection to a TV or AV amplifier/receiver.

3 AV2(INPUT 1/DECODER) AV connector
Audio/video input/output SCART-type AV connector for connecting to a VCR, or other equipment with a SCART connector. The input accepts video, S-video and RGB.

4 ANTENNA IN (RF IN)/OUT
Connect your TV antenna to the **ANTENNA IN (RF IN)** jack. The signal is passed through to the **ANTENNA OUT** jack for connection to your TV.

5 AC IN – Power inlet

6 DIGITAL AUDIO OUT
Coaxial digital audio jack for connecting to an AV amplifier/receiver, Dolby Digital/DTS/ MPEG decoder or other equipment with a digital input.

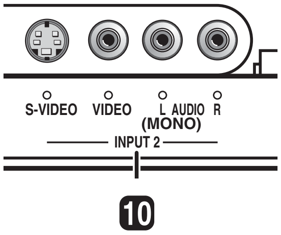
7 CONTROL IN
Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer SR mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

8 G-LINK™
Use to connect the supplied G-LINK™ cable to enable GUIDE Plus+™ to control an external satellite receiver, etc.

9 COMPONENT VIDEO OUT
A high-quality video output for connecting to a TV or monitor with a component video input.

Front panel connections

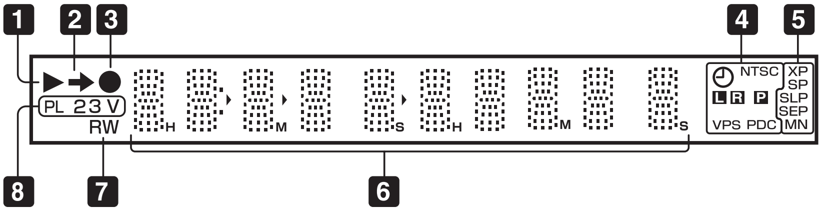
On the front panel a flip-down cover hides more connections.


S-VIDEO
VIDEO
L AUDIO R
(MONO)
INPUT 2
10

10 INPUT 2
Audio/video input (stereo analog audio; composite and S-video video), especially suitable for camcorders, game consoles, portable audio, etc.

8.3 DISPLAY

Display



1 ▶
Lights during playback; blinks when playback is paused.

2 ➡
Lights when copying.

3 ●
Lights during recording; blinks when recording is paused.

4 🕘
Lights when a timer recording has been set. (Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable.)

NTSC
Lights when the video output signal format is NTSC.

L R
Indicates which channels of a bilingual broadcast are recorded.

P
Lights when the component video output is set to progressive scan.

VPS / PDC
Lights when receiving a VPS/PDC broadcast during a VPS/PDC-enabled timer recording.

5 Recording quality indicators

XP
Lights when the recording mode is set to **XP** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP / SLP
Lights when the recording mode is set to **LP** (long play) or **SLP** (super-long play).

EP / SEP
Lights when the recording mode is set to **EP** (extended play) or **SEP** (super-extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

6 Character display

7 R / RW
Lights when a recordable DVD-R or DVD-RW disc is loaded.

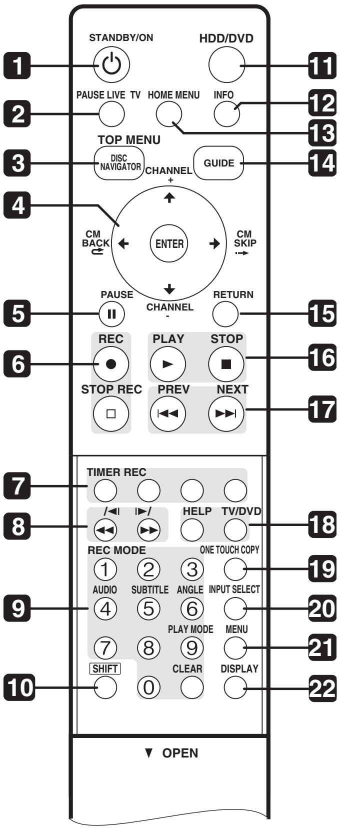
8 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

V
Lights when an unfinalized Video mode disc is loaded.

8.4 REMOTE CONTROL

Remote control


STANDBY/ON
HDD/DVD
PAUSE LIVE TV
HOME MENU
INFO
TOP MENU
DISC NAVIGATOR
CHANNEL +
GUIDE
CM BACK
ENTER
CM SKIP
PAUSE
CHANNEL -
RETURN
REC
PLAY
STOP
STOP REC
PREV
NEXT
TIMER REC
HELP
TV/DVD
REC MODE
ONE TOUCH COPY
1
2
3
AUDIO
SUBTITLE
ANGLE
INPUT SELECT
4
5
6
PLAY MODE
MENU
7
8
9
SHIFT
CLEAR
DISPLAY
0
▼ OPEN
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 PAUSE LIVE TV
Press to start recording the current TV channel, but with playback paused, effectively pausing the broadcast.

3 DISC NAVIGATOR/ TOP MENU
Press to display the Disc Navigator screen, or the top menu if a DVD-Video or finalized DVD-R/RW (Video) disc is loaded.

4 ↑/↓/←/→ and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

CM BACK (commercial back)
Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP (commercial skip)
Press repeatedly to skip progressively forward through the audio or video playing.

CHANNEL +/–
Press to change the channel of the built-in TV tuner.

5 ❚❚ PAUSE
Press to pause playback or recording.

6 Recording controls

● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

When the red action button is visible in a GUIDE Plus+™ screen, use for One-Button-Record.

STOP REC
Press to stop recording.

7 GUIDE Plus+™ Action buttons
When in the GUIDE Plus+™ system, these buttons act as the Red, Green, Yellow and Blue Action buttons (the functions of these buttons change according to the GUIDE Plus+™ Area.

TIMER REC
Hold **SHIFT** and press to set a timer recording from the GUIDE Plus+™ system.

8 ◄◄ ►►
Press to start reverse or forward scanning. Press again to change the speed.

◄II/◄I I►/II►
While paused, press and hold to start slow-motion playback. Press repeatedly to change the playback speed.

While paused, press to advance a single frame in either direction.

When GUIDE Plus+™ is displayed, use to display the previous/next day.

9 Number buttons, CLEAR
Use the number buttons for track/ chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

Use **CLEAR** to clear an entry and start again.

REC MODE
Hold **SHIFT** and press repeatedly to change the recording mode (picture quality).

AUDIO
Hold **SHIFT** and press to change the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE
Hold **SHIFT** and press to display/change the subtitles included in multilingual DVD-Video discs.

ANGLE
Hold **SHIFT** and press to switch camera angles on discs with multi-angle scenes.

PLAY MODE
Hold **SHIFT** and press to change the play mode (search, repeat, program play, etc.)

10 SHIFT
Use to access functions on the remote printed in green.

11 HDD/DVD
Press to select the hard disk (HDD) or DVD for recording and playback.

12 INFO
Press to see additional information for the highlighted item in GUIDE Plus+™.

13 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

14 GUIDE
Press to display the GUIDE Plus+™ screen; press again to exit.

15 RETURN
Press to go back one level in the on-screen menu or display.

16 ► PLAY
Press to start playback.

■ STOP
Press to stop playback.

17 I◄◄ ►►I
Press to skip to the previous or next title/ chapter/track/folder; or to display the previous or next menu page.

When GUIDE Plus+™ is displayed, use to display the previous/next page.

18 HELP
Press for help on how to use the current GUI screen.

TV/DVD
Press to switch between 'TV mode', in which you get the picture and sound from the TV's tuner, and 'DVD mode', in which you get picture and sound from the recorder's tuner (or an external input).

19 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

20 INPUT SELECT
Press to change the input to use for recording.

21 MENU
Press to display the disc menu if a DVD-Video, finalized DVD-R/-RW or finalized DVD+R/+RW disc is loaded.

When in the GUIDE Plus+™ system, use to jump directly to the Menu bar.

22 DISPLAY
Displays/changes the on-screen information displays.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	Adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc Type2	——— (*)	Diagnosis (ID data setting)
Flexible Cable (35P)	GGD1478	Diagnosis of MAIN Assy
4P Power Cable	VKP2291	Extension of HDD
Jig for LD Power Adjustment	GGF1559	LD Power Adjustment
FFC Cable (10P)	GGD1477	LD Power Adjustment
CD-ROM Test Disc	GGV1054	LD Power Adjustment
DVD Dual Layer Test Disc	GGV1036	LD Power Adjustment

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

■ Lubricants and Glues list

Name	Lubricants and Glues No.	Remarks
Hanarl	GEM1041	refer to "2.3 FRONT PANEL SECTION"

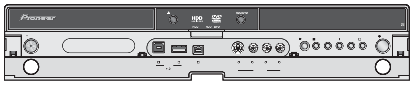
Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

Pioneer sound.vision.soul

Service Manual



DVR-640H-AV

ORDER NO.
RRV3368

DVD RECORDER

DVR-640H-AV
DVR-540H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	**Serial No.** Please confirm 3rd & 4th alphabetical letters.
DVR-640H-AV	WYXK5	AC220-240V	2	&&UK######$$
DVR-640H-AV	WYXV5	AC220-240V	2	&&DL######$$
DVR-540H-S	WYXK5	AC220-240V	2	&&UK######$$
DVR-540H-S	WYXV5	AC220-240V	2	&&DL######$$
DVR-540H-S	WYXVRE5	AC220-240V	5	&&DL######$$

- **When servicing this model, some service procedures may reset the customer settings to the factory default settings. Make sure to explain this to the customer.**

An HDD (Hard Disc Drive) is mounted in this product.
The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.3 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.
When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible.
Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
The user must be made aware that all recorded data are deleted if the HDD is intialized.

For details, refer to "Important Check Points for Good Servicing" .

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

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T-ZZV APR. 2006 printed in Japan

SAFETY INFORMATION

■ LABEL CHECK

IMPORTANT

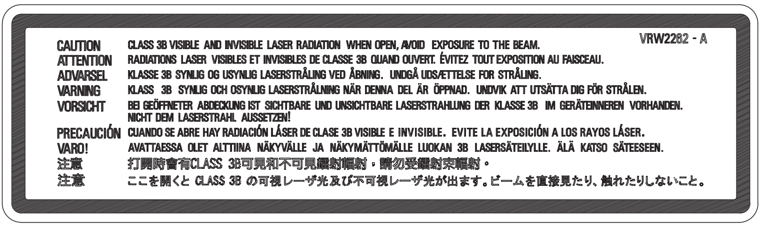
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 100 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS

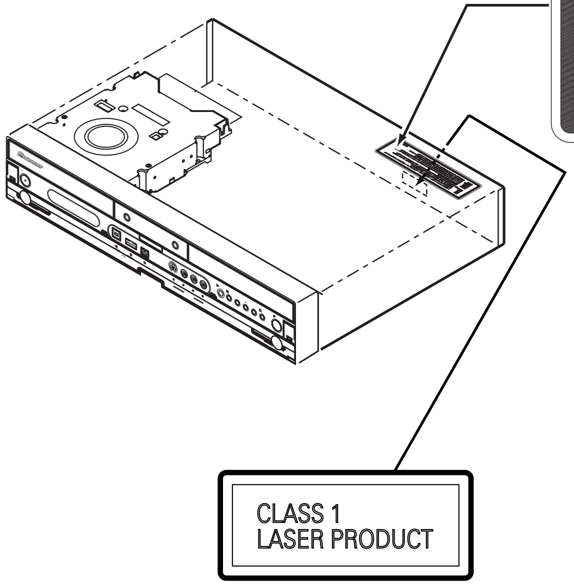
MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 770 - 810 nm



VRW2262 - A

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION	RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL	KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT	BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTEINNEREN VORHANDEN. NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN	CUANDO SE ABRE HAY RADIACIÓN LÁSER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LÁSER.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
注意	打開時會有CLASS 3B可見和不可見鐳射輻射，請勿受鐳射束輻射。
注意	ここを開くと CLASS 3B の可視レーザ光及び不可視レーザ光が出ます。ビームを直接見たり、触れたりしないこと。

VRW2262



Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

General

Power requirements . . . . . 220 V to 240 V, 50 Hz / 60 Hz
Power consumption
DVR-640H-AV . . . . 43 W
DVR-540H-S . . . . 40 W
(DVR-440H-S/DVR-440H-K . . . . 39 W)
Power consumption in standby mode . . . . 0.61 W
(Front panel display: off)
Weight
DVR-640H-AV. . . . . 4.4 kg
DVR-540H-S . . . . .4.3 kg
(DVR-440H-S/DVR-440H-K . . . . 4.3 kg)
Dimensions . . . . 420 mm (W) x 69 mm (H) x 318 mm (D)
Operating temperature . . . .+5 °C to +35 °C
Operating humidity .5 % to 85 %
(no condensation)
TV system . . . . PAL/SECAM/
NTSC (external input only)

Readable discs

DVD-Video, DVD-RW, DVD-R, DVD+R, DVD+RW, DVD-RAM, Video CD, Super VCD, CD, CD-R/-RW (WMA, MP3, JPEG, CD-DA)

Recording discs and formats

DVD-R/RW: VR mode and Video mode
DVD+R/+RW: +VR mode
DVD-RAM: VR mode
DVD-R DL: VR mode and Video mode
DVD+R DL: +VR mode

Video recording format

Sampling frequency . . . . 13.5 MHz
Compression format. . . . . MPEG

Audio recording format

Sampling frequency . . . . .48 kHz
Compression format . . . . Dolby Digital or Linear PCM
(uncompressed)

Recording time

HDD

DVR-640H-AV/DVR-540H-S (160 GB)

Fine (XP) . . . . Approx. 34 h
Standard Play (SP) .Approx. 68 h
Long Play (LP) . . . . Approx. 136 h
Extended Play (EP) . . . . Approx. 204 h
Super Long Play (SLP) . . . . Approx. 272 h
Super Extended Play (SEP) . . . . .Approx. 340 h
Manual Mode (MN). . . . . Approx. 34 h to 455 h

DVR-440H-S/K (80 GB) (Reference)

Fine (XP). . . . . .Approx. 17 h
Standard Play (SP) .Approx. 34 h
Long Play (LP) . . . . Approx. 68 h
Extended Play (EP) . . . . Approx. 102 h
Super Long Play (SLP) . . . . .Approx. 136 h
Super Extended Play (SEP) . . . . .Approx. 170 h
Manual Mode (MN). . . . . Approx. 17 h to 227 h

DVD-R/-RW, DVD+R/+RW, DVD-RAM

Fine (XP) . . . . Approx. 1 h
Standard Play (SP) . . . . Approx. 2 h
Long Play (LP) . . . . .Approx. 4 h
Extended Play (EP) . . . . .Approx. 6 h
Super Long Play (SLP) . . . . Approx. 8 h
Super Extended Play (SEP) . . . . .Approx. 10 h
(DVD-R/-RW, DVD-RAM only)
Manual Mode (MN)
DVD-R/-RW/-RAM . . . . Approx. 1 h to 13 h
DVD+R/+RW . . . . Approx. 1 h to 8 h

DVD-R DL/DVD+R DL

Fine (XP) . . . . .Approx. 1 h 51 m
Standard Play (SP) . . . . .Approx. 3 h 35 m
Long Play (LP) . . . . Approx. 7 h 11 m
Extended Play (EP) . . . . Approx. 10 h 46 m
Super Long Play (SLP) . . . . .Approx. 14 h 21 m
Super Extended Play (SEP) . . . . Approx. 17 h 57 m
(DVD-R DL only)
Manual Mode (MN)
DVD-R DL . . . . Approx. 1 h 51 m to 24 h
DVD+R DL . . . . Approx. 1 h 51 m to 14 h 21 m

Timer

Programs . . . . .1 month/32 programs
Clock . . . . Quartz lock (24-hour digital display)

Tuner

Receivable channels

	SECAM B/G PAL B/G		PAL I	
	Frequency	Channel	Frequency	Channel
VHF (low)	47 MHz to 89 MHz	E2 to E4 X to Z	44 MHz to 89 MHz	A to C X to Z
VHF (high)	104 MHz to 300 MHz	E5 to E12 S1 to S20 M1 to M10 U1 to U10	104 MHz to 300 MHz	D to J 11, 13 S1 to S20
Hyper	302 MHz to 470 MHz	S21 to S41	302 MHz to 470 MHz	S21 to S41
UHF	470 MHz to 862 MHz	E21 to E69	470 MHz to 862 MHz	E21 to E69

	SECAM L		SECAM D/K PAL D/K	
	Frequency	Channel	Frequency	Channel
VHF (low)	49 MHz to 65 MHz	FB, FC1, FC	49 MHz to 94 MHz	R1 to R5
VHF (high)	104 MHz to 300 MHz	F1 to F6 B to Q	104 MHz to 300 MHz	R6 to R12 S1 to S20
Hyper	300 MHz to 470 MHz	S21 to S41	302 MHz to 470 MHz	S21 to S41
UHF	470 MHz to 862 MHz	21 to 69	470 MHz to 862 MHz	E21 to E69

STEREO
B/G - A2
I - NICAM
L - NICAM
B/G - NICAM
D/K - NICAM

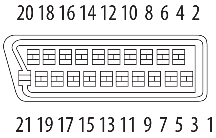
Input/Output

VHF/UHF antenna input/output terminal	VHF/UHF set 75Ω (IEC connector)
Video input	Input 2 (front)
Input level	1 Vp-p (75Ω)
Jacks	AV connector 2 (Input 1), RCA jack (Input 2)
Video output	AV1, Output
Output level	1 Vp-p (75Ω)
Jacks	AV connector (AV1) RCA jack (Output)
S-Video input	Input 2 (front)
Y (luminance) - Input level	1 Vp-p (75Ω)
C (colour) - Input level	300 mVp-p (75Ω)
Jacks	AV connector 2 (Input 1), 4 pin mini DIN (Input 2)
S-Video output	AV1, Output
Y (luminance) - Output level	1 Vp-p (75Ω)
C (colour) - Output level	300 mVp-p (75Ω)
Jacks	AV connector 1 (AV1), 4 pin mini DIN (Output)
Component video output	
Output level	Y: 1.0 Vp-p (75Ω) P_B, P_R: 0.7 Vp-p (75Ω)
Jacks	RCA jacks
RGB input	
Input level	0.7 Vp-p (75Ω)
Jacks	AV connector 2 (Input 1)
RGB output	
Output level	0.7 Vp-p (75Ω)
Jacks	AV connector 1 (AV1)
Audio input	Input 2 (front) L/R
Input level	
During audio input	2 V rms (Input impedance: more than 22 kΩ)
Jacks	AV connector 2 (Input 1), RCA jacks (Input 2)
Audio output	AV1, Output
During audio output	2 V rms (Output impedance: less than 1.5 kΩ)
Jacks	AV connector 1 (AV1), RCA jacks (Output)
Control input	Mini jack
Digital audio ouptut	Coaxial
G-LINK™	Mini jack

AV Connectors (21-pin connector assignment)

AV connector input/output . . . . 21-pin connector

This connector provides the video and audio signals for connection to a compatible colour TV or monitor.



PIN no.	AV1(RGB)-TV / AV2(INPUT 1)
1	Audio 2/R out / Audio 2/R out
2	- / Audio 2/R in
11	G out / G in
3	Audio 1/L out / Audio 1/L out
6	- / Audio 1/L in
15	R or C out / R or C in
4	GND
17	GND
7	B out / B in
19	Video out or Y out / Video out
20	- / Video in or Y in
8	Status
21	GND

Supplied accessories

Remote control	1
Dry cell batteries (AA/R6P)	2
Audio / Video cable (red/white/yellow)	1
G-LINK™ cable	1
RF antenna cable	1
Power cable	1
Operating Instructions	
Warranty card	1

Note: The specifications and design of this product are subject to change without notice, due to improvement.

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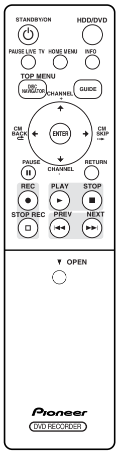
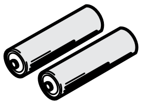
● Accessories

Except DVR-640H-AV

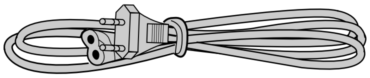
- Remote control ×1
  (VXX3129)


STANDBY/ON
HDD/DVD
PAUSE LIVE TV
HOME MENU
INFO
TOP MENU
DISC NAVIGATOR
GUIDE
CHANNEL
CM BACK
ENTER
CM SKIP
PAUSE
CHANNEL
RETURN
REC
PLAY
STOP
STOP REC
PREV
NEXT
OPEN
Pioneer
DVD RECORDER

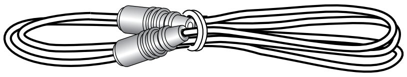
- Dry cell batteries ×2
  (AA/R6P)



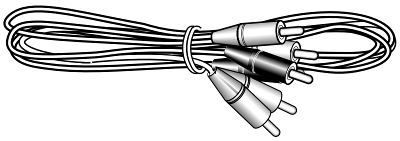
- Power cable ×1
  (ADG1127 : WYXK5, WYXV5,
  WYXVRE5 types)



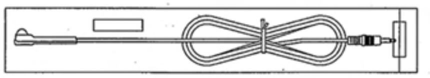
- RF antenna cable(PAL) ×1
  (VDE1075)



- Audio / Video cable(1.5m) ×1
  (red/white/yellow)
  (VDE1077)



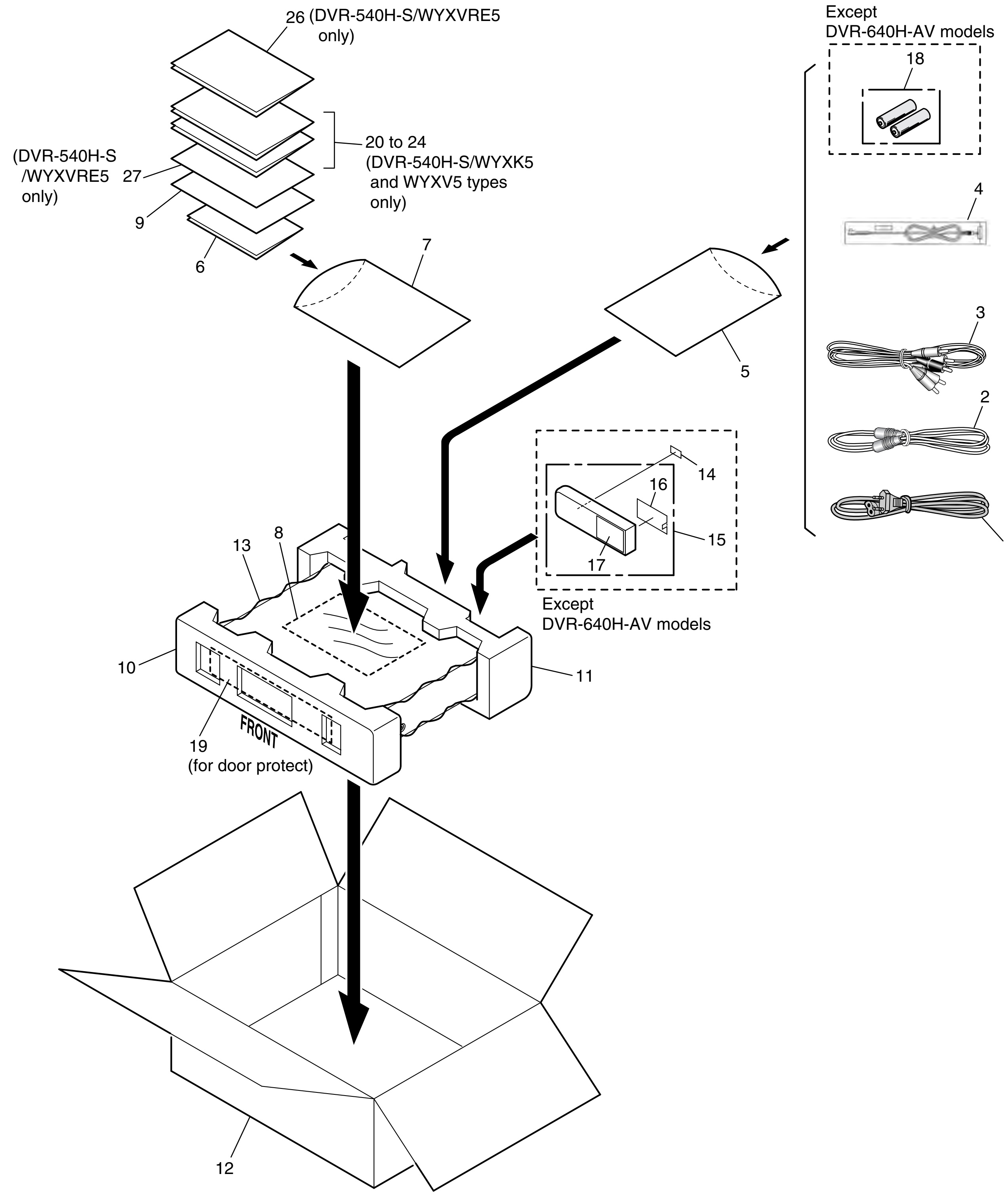
- G-Link Cable (3m) ×1
  (VDX1010)



2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



26 (DVR-540H-S/WYXVRE5 only)
20 to 24 (DVR-540H-S/WYXK5 and WYXV5 types only)
(DVR-540H-S /WYXVRE5 only) 27
9
6
7
5
Except DVR-640H-AV models
18
4
3
2
1
14
16
15
17
Except DVR-640H-AV models
13
8
10
11
FRONT
19 (for door protect)
12

(1) PACKING SECTION PARTS LIST

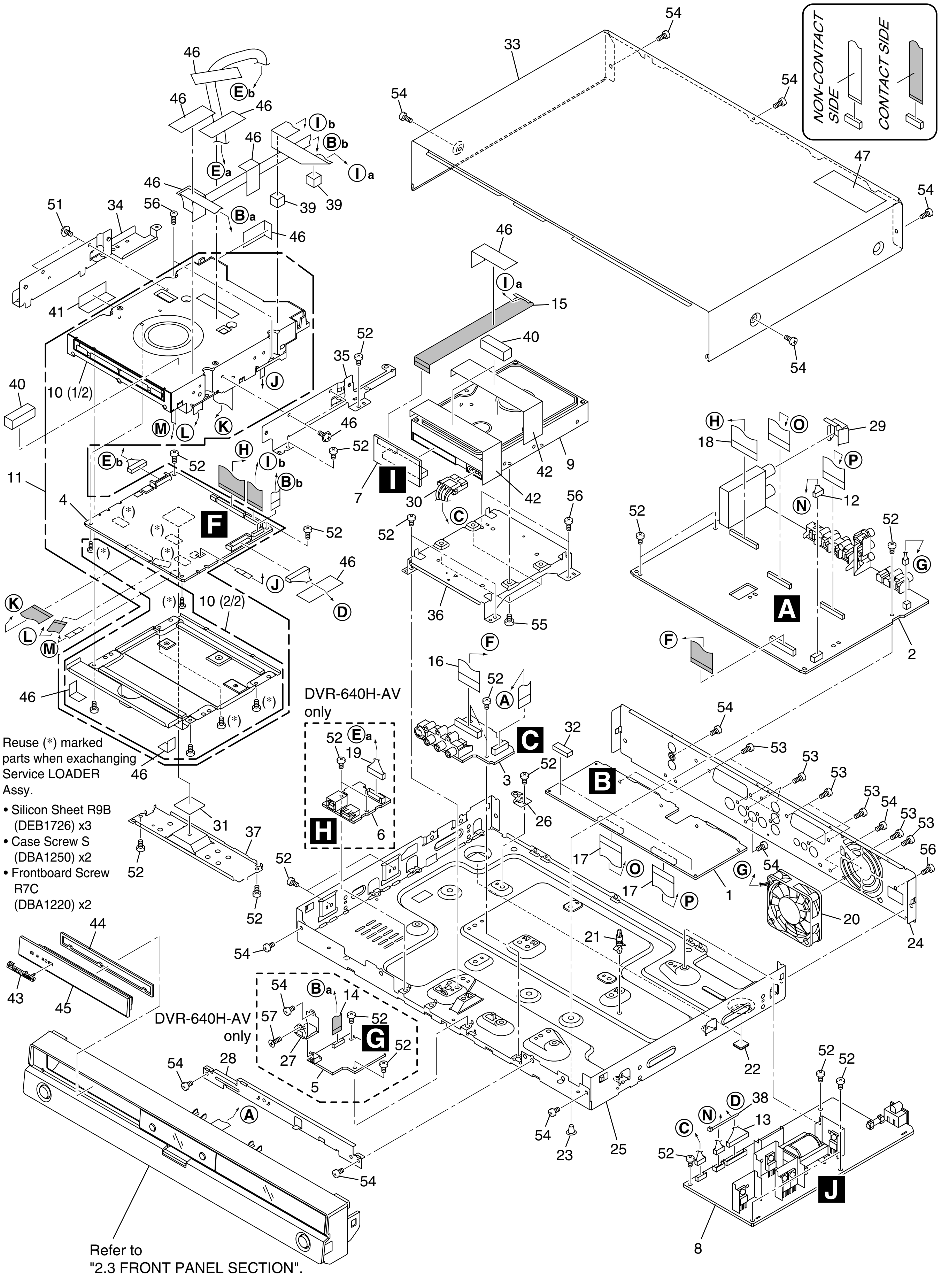
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
	2	RF Antenna Cable (PAL)	VDE1075
	3	Audio/Video Cable (1.5m)	VDE1077
	4	G-Link Cable (3m)	VDX1010
	5	Polyethylene Bag B5	VHL1088
NSP	6	Warranty Card	ARY7065
	7	Polyethylene Bag	See Contrast table (2)
NSP	8	HDD Caution 8L B	See Contrast table (2)
NSP	9	HDD Caution 8L	See Contrast table (2)
	10	Front Pad	See Contrast table (2)
	11	Rear Pad	See Contrast table (2)
	12	Packing Case	See Contrast table (2)
	13	Mirror Sheet	See Contrast table (2)
	14	WEEE Label	See Contrast table (2)
	15	Remote Control Unit	See Contrast table (2)
	16	Battery Cover	See Contrast table (2)
	17	Top Cover	See Contrast table (2)
NSP	18	Dry Cell Battery (R6P, AA)	See Contrast table (2)
	19	Mirror Sheet	VHL1104
	20	Operating Instructions	See Contrast table (2)
	21	Operating Instructions	See Contrast table (2)
	22	Operating Instructions	See Contrast table (2)
	23	Operating Instructions	See Contrast table (2)
	24	Operating Instructions	See Contrast table (2)
	25	Operating Instructions	See Contrast table (2)
	26	Operating Instructions	See Contrast table (2)
	27	EPG Caution Card	See Contrast table (2)

(2) CONTRAST TABLE

DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5 and WYXVRE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
⚠	1	Power Cord	ADG1127	ADG1127	ADG1127	ADG1127	ADG1127
	7	Polyethylene Bag	VHL1051	VHL1088	VHL1051	VHL1088	VHL1088
NSP	8	HDD Caution 8L B	VRR1046	VRR1062	VRR1046	VRR1062	VRR1062
NSP	9	HDD Caution 8L	VRR1047	VRR1063	VRR1047	VRR1063	VRR1063
	10	Front Pad	VHA1404	VHA1415	VHA1404	VHA1415	VHA1415
	11	Rear Pad	VHA1405	VHA1416	VHA1405	VHA1416	VHA1416
	12	Packing Case	VHG2719	VHG2757	VHG2698	VHG2683	VHG2734
	13	Mirror Sheet	VHL1107	VHL1095	VHL1107	VHL1095	VHL1095
	14	WEEE Label	Not used	Not used	VRW2231	VRW2231	VRW2231
	15	Remote Control Unit	Not used	Not used	VXX3129	VXX3129	VXX3129
	16	Battery Cover	Not used	Not used	VZN1004	VZN1004	VZN1004
	17	Top Cover	Not used	Not used	VZN1009	VZN1009	VZN1009
NSP	18	Dry Cell Battery (R6P, AA)	Not used	Not used	VEM1010	VEM1010	VEM1010
	20	Operating Instructions (French)	Not used	Not used	VRC1320	VRC1320	Not used
	21	Operating Instructions (German)	Not used	Not used	VRC1321	VRC1321	Not used
	22	Operating Instructions (Italian)	Not used	Not used	VRC1322	VRC1322	Not used
	23	Operating Instructions (Dutch)	Not used	Not used	VRC1323	VRC1323	Not used
	24	Operating Instructions (Spanish)	Not used	Not used	VRC1324	VRC1324	Not used
	25	Operating Instructions (English)	Not used	Not used	Not used	Not used	Not used
	26	Operating Instructions (Russian)	Not used	Not used	Not used	Not used	VRC1333
	27	EPG Caution Card	Not used	Not used	Not used	Not used	VRR1066

2.2 EXTERIOR SECTION


NON-CONTACT SIDE
CONTACT SIDE
33
54
47
46
Eb
Ea
Ib
Ia
Bb
Ba
39
51
34
56
41
40
10 (1/2)
J
M
L
K
35
52
15
9
42
7
I
30
C
36
55
H
O
P
N
29
18
12
G
A
2
F
11
4
(*)
F
D
10 (2/2)
16
C
32
3
26
B
53
1
17
20
24
21
22
25
23
DVR-640H-AV
only
19
H
6
31
37
44
43
45
DVR-640H-AV
only
57
14
G
27
5
28
A
38
13
D
J
8

Reuse (*) marked parts when exachanging Service LOADER Assy.

- Silicon Sheet R9B (DEB1726) x3
- Case Screw S (DBA1250) x2
- Frontboard Screw R7C (DBA1220) x2

Refer to "2.3 FRONT PANEL SECTION".

(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	SCRB Assy	VWV2206
	2	TUJB Assy (for service)	See Contrast table (2)
	3	FJKB Assy (for service)	VXX3113
	4	MAIN Assy (for service)	See Contrast table (2)
	5	DVJB Assy	See Contrast table (2)
	6	USBB Assy	See Contrast table (2)
	7	ATAB Assy (for service)	VXX3140
⚠	8	POWER SUPPLY Unit	VWR1399
	9	HDD 160GB ST3160022RS	VXF1086
	10	LOADER Assy (for service)	VXX3156
NSP	11	Service LOADER MAIN	See Contrast table (2)
	12	Connector Assy	PF05PP-S07
	13	Connector Assy	PF13PP-S22
	14	Flexible Cable 24P	See Contrast table (2)
	15	Flexible Cable 40P	VDA2112
	16	Flexible Cable 23P	VDA2115
	17	Flexible Cable 29P	VDA2117
	18	Flexible Cable 35P	VDA2118
	19	Housing USB (MAIN)	See Contrast table (2)
	20	DC Fan Motor 60	VXM1125
	21	PCB Support	AEC1215
	22	Rubber Foot	VEB1349
NSP	23	PC Support	VEC1749
	24	Rear Panel	See Contrast table (2)
NSP	25	Chassis	VNB1055
NSP	26	PCB Base	VNE2378
	27	DV Angle	See Contrast table (2)
NSP	28	Bridge	VNE2429
	29	Earth Plate TU	VBK1162
	30	Housing Assy 4P	VKP2357

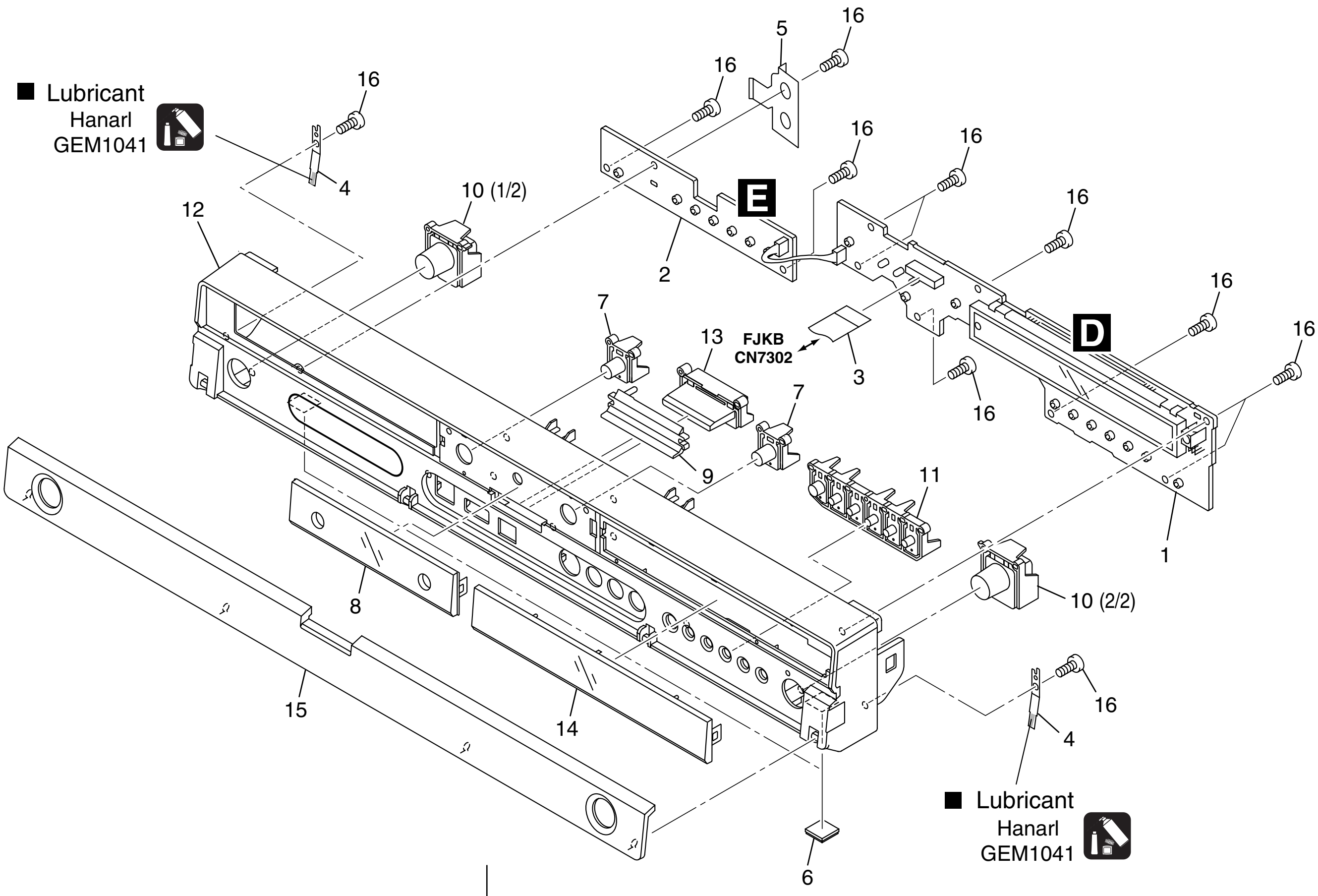
Mark	No.	Description	Part No.
	31	Radiation Sheet (Silicone)	VEB1360
	32	Rubber Spacer	VEB1378
	33	Bonnet	VXX3105
NSP	34	Writer Stay L	VNE2421
NSP	35	Writer Stay R	VNE2422
NSP	36	HDD Stay	VNE2423
	37	Heatsink	VNH1077
NSP	38	Binder (BK-1)	ZCA-BK1
	39	Rubber Spacer B	VEB1380
	40	Gasket 30 x 10T	VEC2522
	41	Aluminum Tape 25 x 25	VEF1060
	42	Aluminum Tape 180 x 25	VEF1065
	43	Pioneer Name Plate	VAM1148
	44	Tray Sheet	VEC2500
	45	Tray Panel	VNK5910
NSP	46	Tape	ZTA-156A-19
	47	Laser Caution Label	VRW2262
	48	•••••	
	49	•••••	
	50	•••••	
	51	Screw	AMZ30P040FTC
	52	Screw	BBZ30P060FTC
	53	Screw	BPZ30P080FTC
	54	Screw	BSZ30P040FTC
	55	#6-32 Screw	DBA1125
	56	Screw	PBZ30P080FTC
	57	Screw M3 x 8	See Contrast table (2)

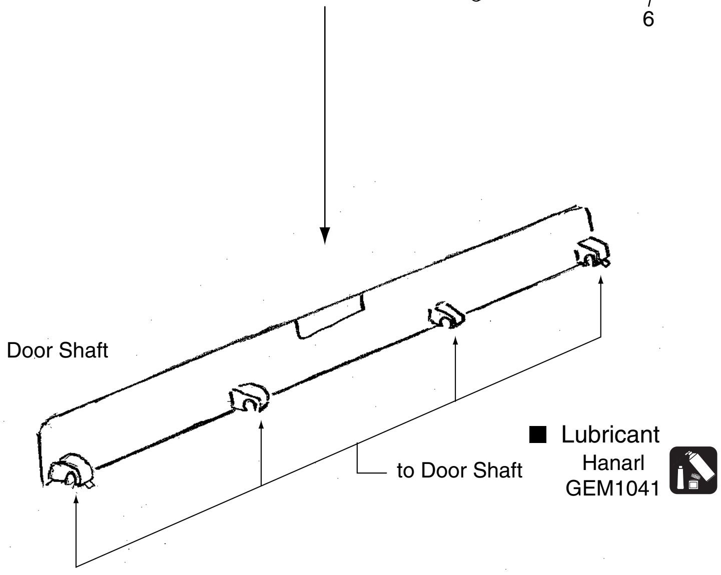
(2) CONTRAST TABLE

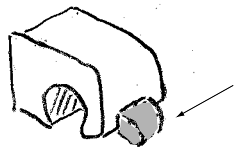
DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5, WVXK5 and WYXVRE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
	2	TUJB Assy (for service)	VXX3109	VXX3109	VXX3108	VXX3108	VXX3108
	4	MAIN Assy (for service)	VXX3157	VXX3157	VXX3159	VXX3159	VXX3159
	5	DVJB Assy	VWV2160	VWV2160	Not used	Not used	Not used
	6	USBB Assy	VWV2161	VWV2161	Not used	Not used	Not used
NSP	11	Service LOADER MAIN	VXU1001	VXU1001	VXU1002	VXU1002	VXU1002
	14	Flexible Cable 24P	VDA2111	VDA2111	Not used	Not used	Not used
	19	Housing USB (MAIN)	VKP2380	VKP2380	Not used	Not used	Not used
	24	Rear Panel	VNA2903	VNA2931	VNA2894	VNA2916	VNA2915
	27	DV Angle	VNE2426	VNE2426	Not used	Not used	Not used
	57	Screw M3 x 8	VBA1088	VBA1088	Not used	Not used	Not used

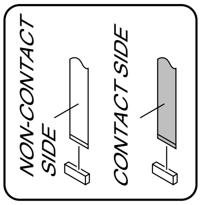
2.3 FRONT PANEL SECTION


■ Lubricant
Hanarl
GEM1041
16
5
16
16
16
16
16
16
16
16
16
4
10 (1/2)
12
E
2
7
13
FJKB
CN7302
3
D
7
9
11
1
10 (2/2)
8
15
14
4
■ Lubricant
Hanarl
GEM1041
6


Door Shaft
to Door Shaft
■ Lubricant
Hanarl
GEM1041



Paste lubricant hanarl (GEM1041) to salient points of both side of the door.


NON-CONTACT SIDE
CONTACT SIDE

(1) FRONT PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FLKY Assy (for service)	VXX3111
	2	KEYB Assy (for service)	VXX3112
	3	Flexible Cable 12P	VDA2116
	4	Door Spring	VBK1159
	5	Earth Plate	VBK1166
	6	Rubber Foot	VEB1349
	7	Sub Key	VNK5909
	8	Center Cover	VNK5911
	9	LED Lens	VNK5913
	10	Main Key	See Contrast table (2)
	11	Function Key	VNK5936
	12	Front Panel	See Contrast table (2)
	13	Center Key	See Contrast table (2)
	14	FL Lens PTD	See Contrast table (2)
	15	Door PTD	See Contrast table (2)
	16	Screw	BPZ30P080FTC

(2) CONTRAST TABLE

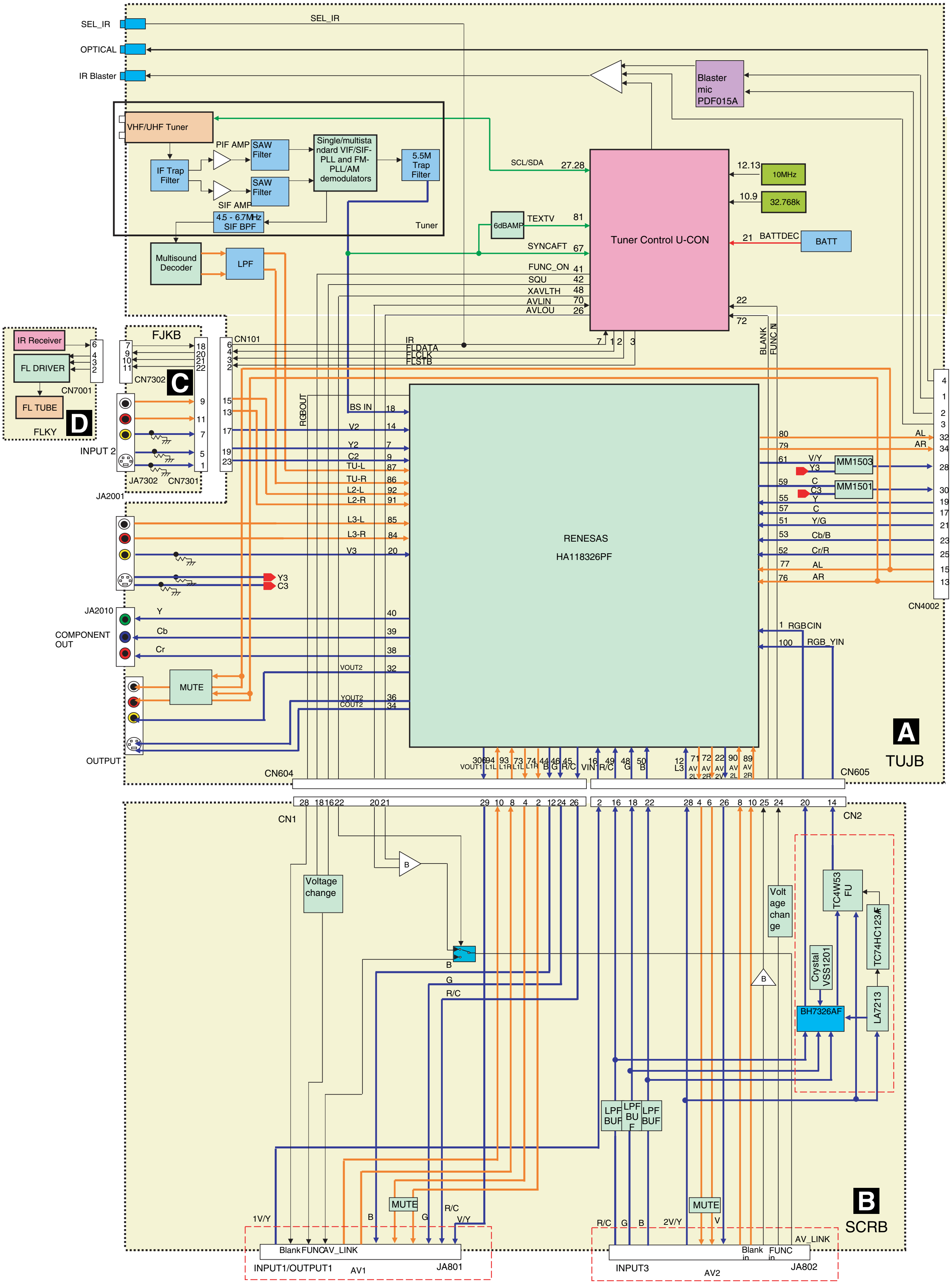
DVR-640H-AV/WYXK5, WYXV5, DVR-540H-S/WYXK5, WYXV5, WVXK5 and WYXVRE5 are constructed the same except for the following:

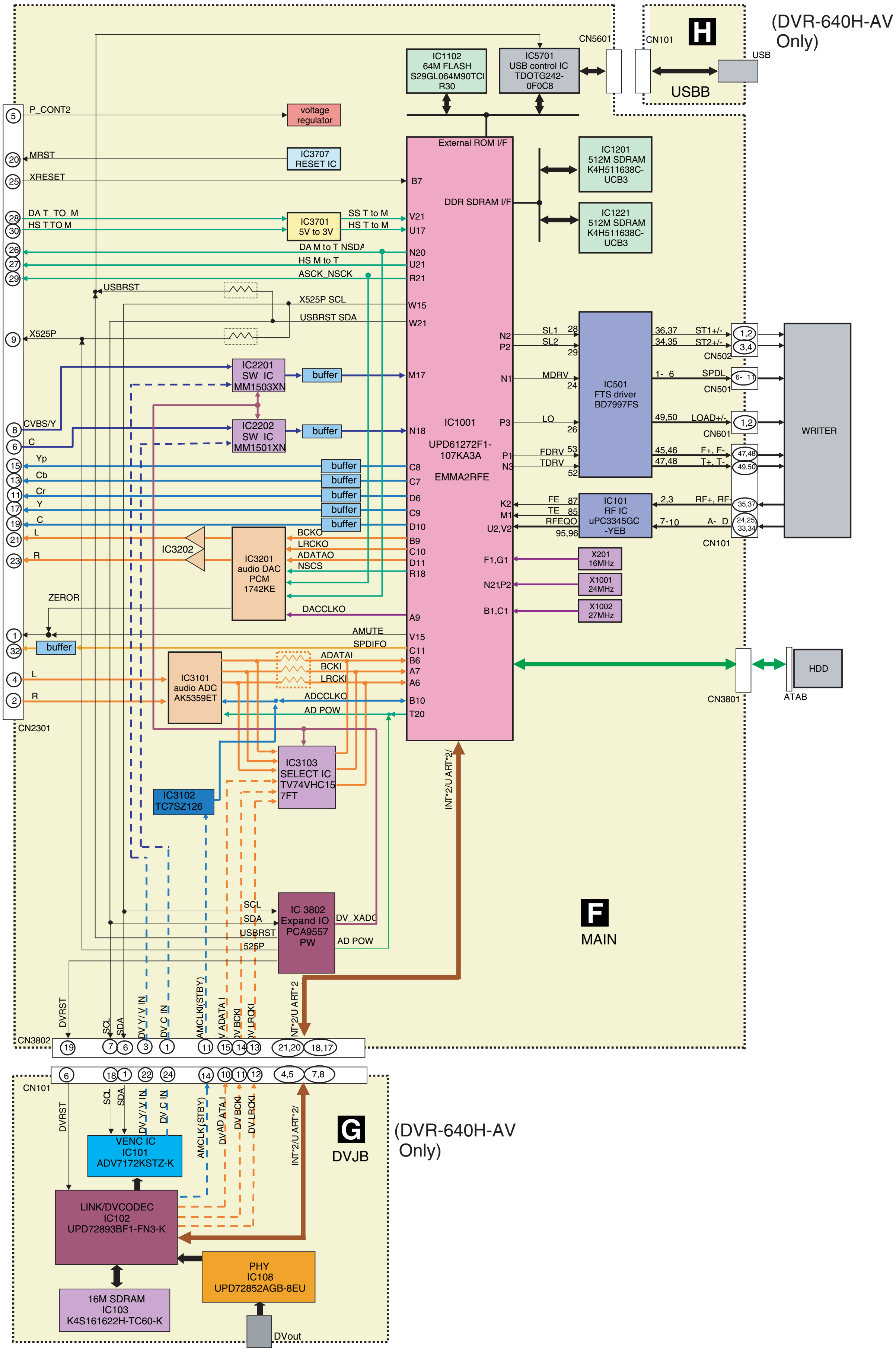
Mark	No.	Symbol and Description	DVR-640H-AV /WYXK5	DVR-640H-AV /WYXV5	DVR-540H-S /WYXK5	DVR-540H-S /WYXV5	DVR-540H-S /WYXVRE5
	10	Main Key	VNK5925	VNK5925	VNK5908	VNK5908	VNK5908
	12	Front Panel	VNK5957	VNK5957	VNK5923	VNK5923	VNK5923
	13	Center Key	VNK6026	VNK6026	VNK6025	VNK6025	VNK6025
	14	FL Lens PTD	VXA2741	VXA2741	VXA2740	VXA2740	VXA2740
	15	Door PTD	VXA2775	VXA2775	VXA2774	VXA2774	VXA2774

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

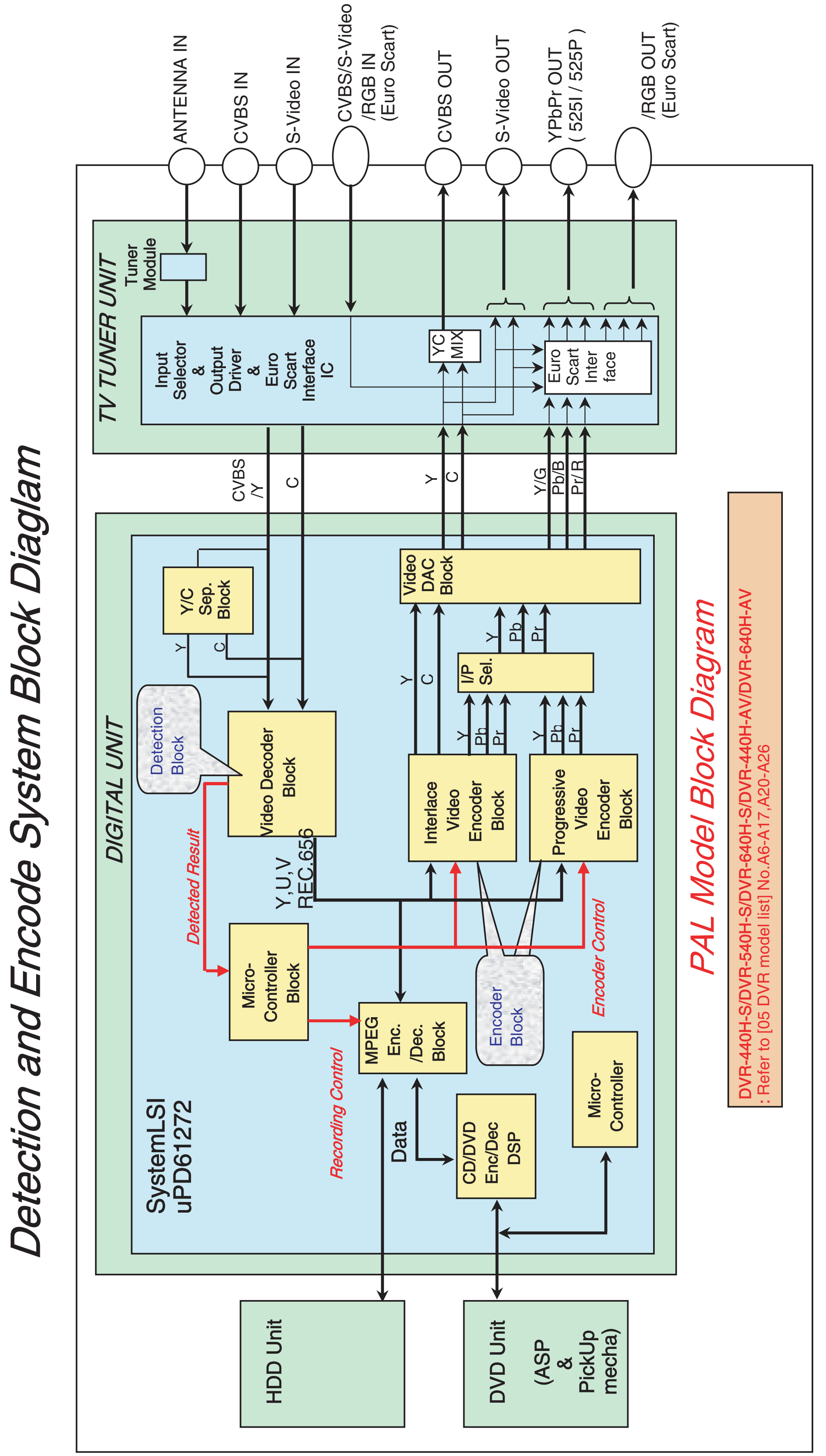
3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM


A
B
C
D
E
F
SEL_IR
OPTICAL
IR Blaster
Blaster mic PDF015A
VHF/UHF Tuner
PIF AMP
SAW Filter
IF Trap Filter
SAW Filter
SIF AMP
Single/multistandard VIF/SIF-PLL and FM-PLL/AM demodulators
5.5M Trap Filter
4.5 - 6.7MHz SIF BPF
Tuner
Multisound Decoder
LPF
SCL/SDA
27.28
Tuner Control U-CON
12.13
10MHz
10.9
32.768k
21 BATTDEC
BATT
6dBAMP
TEXTV 81
SYNCAFT 67
FUNC_ON 41
SQU 42
XAVLTH 48
AVLIN 70
AVLOU 26
22
72
7 1 2 3
BLANK
FUNC_IN
IR Receiver
FL DRIVER
FL TUBE
CN7001
FLKY
D
FJKB
CN7302
C
INPUT 2
JA7302
CN7301
CN101
IR
FLDATA
FLCLK
FLSTB
RGBOUT
BS IN 18
V2 14
Y2 7
C2 9
TU-L 87
TU-R 86
L2-L 92
L2-R 91
L3-L 85
L3-R 84
V3 20
40
39
38
VOUT2 32
YOUT2 36
COUT2 34
RENESAS
HA118326PF
JA2001
Y3
C3
JA2010
Y
Cb
Cr
COMPONENT OUT
MUTE
OUTPUT
CN604
80 AL
79 AR
61 V/Y
MM1503
Y3
59 C
C3
MM1501
55 Y
57 C
51 Y/G
53 Cb/B
52 Cr/R
77 AL
76 AR
CN4002
1 RGBCIN
100 RGB_YIN
A
TUJB
CN605
VOUT1 L1L L1R L1L L1R B G R/C VIN R/C G B L3 AV2L AV2R AV2V AV2L AV2R
CN1
28 18 16 22 20 21 29 10 8 4 2 12 24 26
2 16 18 22 28 4 6 26 8 10 25 24 20 14
CN2
Voltage change
B
G
R/C
Volt age chan ge
B
TC4W53FU
TC74HC123AF
Crystal VSS1201
BH7326AF
LA7213
LPF BUF
LPF BUF
LPF BUF
MUTE
MUTE
1V/Y
B
G
R/C
V/Y
Blank FUNC AV_LINK
INPUT1/OUTPUT1
AV1
JA801
R/C G B 2V/Y V
AV_LINK
Blank in
FUNC in
INPUT3
AV2
JA802
B
SCRB


(DVR-640H-AV Only)
H
USBB
CN101
USB
CN5601
IC1102 64M FLASH S29GL064M90TCI R30
IC5701 USB control IC TDOTG242-0F0C8
P_CONT2
voltage regulator
MRST
IC3707 RESET IC
XRESET
DA T_TO_M
HS T TO M
IC3701 5V to 3V
SS T to M
HS T to M
DA M to T NSDA
HS M to T
ASCK_NSCK
USBRST
X525P SCL
USBRST SDA
X525P
External ROM I/F
DDR SDRAM I/F
IC1201 512M SDRAM K4H511638C-UCB3
IC1221 512M SDRAM K4H511638C-UCB3
B7
V21
U17
N20
U21
R21
W15
W21
M17
N18
C8
C7
D6
C9
D10
B9
C10
D11
R18
A9
V15
C11
B6
A7
A6
B10
T20
IC1001
UPD61272F1-107KA3A
EMMA2RFE
N2
P2
N1
P3
P1
N3
K2
M1
U2,V2
F1,G1
N21,P2
B1,C1
SL1 28
SL2 29
MDRV 24
LO 26
FDRV 53
TDRV 52
FE 87
TE 85
RFEQO
95,96
IC501 FTS driver BD7997FS
IC101 RF IC uPC3345GC-YEB
36,37 ST1+/-
34,35 ST2+/-
1,2
3,4
CN502
1- 6 SPDL
6- 11
CN501
49,50 LOAD+/-
1,2
CN601
45,46 F+, F-
47,48 T+, T-
47,48
49,50
2,3 RF+, RF-
7-10 A- D
35,37
24,25 33,34
CN101
WRITER
X201 16MHz
X1001 24MHz
X1002 27MHz
IC2201 SW IC MM1503XN
IC2202 SW IC MM1501XN
buffer
CVBS/Y
C
Yp
Cb
Cr
Y
C
L
R
IC3202
IC3201 audio DAC PCM 1742KE
BCKO
LRCKO
ADATAO
NSCS
ZEROR
DACCLKO
AMUTE
SPDIFO
buffer
L
R
IC3101 audio ADC AK5359ET
ADATAI
BCKI
LRCKI
ADCCLKO
AD POW
CN2301
5
20
25
28
30
26
27
29
9
8
6
15
13
11
17
19
21
23
1
32
4
2
CN3801
HDD
ATAB
IC3103 SELECT IC TV74VHC15 7FT
IC3102 TC7SZ126
INT*2/U ART*2/
IC 3802 Expand IO PCA9557 PW
SCL
SDA
USBRST
525P
DV_XADC
AD POW
F
MAIN
DVRST
SCL
SDA
DV Y/V IN
DV C IN
AMCLKI(STBY)
V ADATA I
DV BCKI
DV LRCKI
INT*2/U ART*2
CN3802
19
7
6
3
1
11
15
14
13
21,20
18,17
6
18
1
22
24
14
10
11
12
4,5
7,8
CN101
DVRST
SCL
SDA
DV Y/V IN
DV C IN
AMCLKI(STBY)
DVAD ATA I
DV BCKI
DV LRCKI
INT*2/U ART*2/
VENC IC IC101 ADV7172KSTZ-K
G
DVJB
(DVR-640H-AV Only)
LINK/DVCODEC IC102 UPD72893BF1-FN3-K
16M SDRAM IC103 K4S161622H-TC60-K
PHY IC108 UPD72852AGB-8EU
DVout

3.1.2 DETECTION AND ENCODE SYSTEM BLOCK DIAGRAM



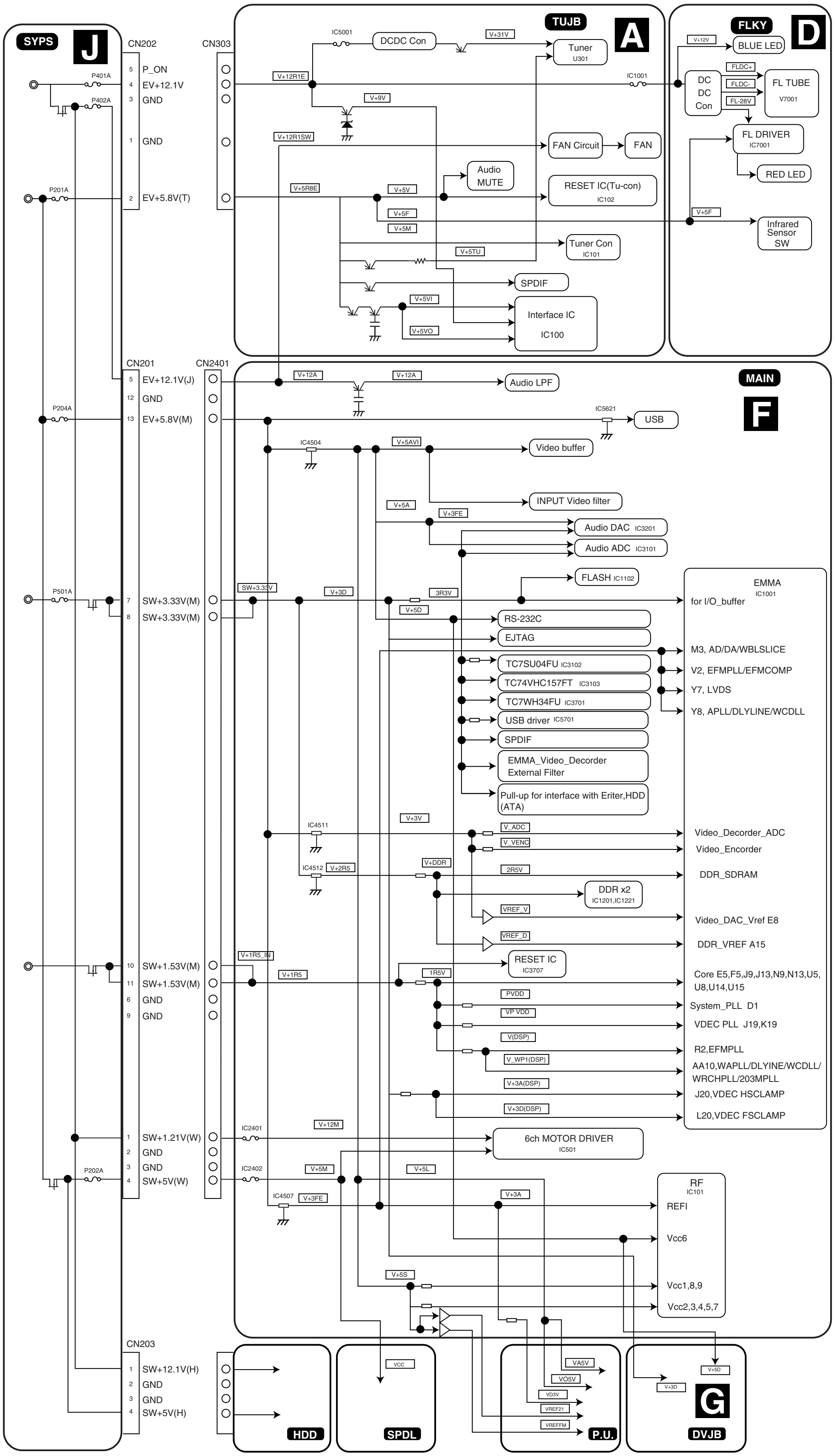
Detection and Encode System Block Diaglam

PAL Model Block Diagram

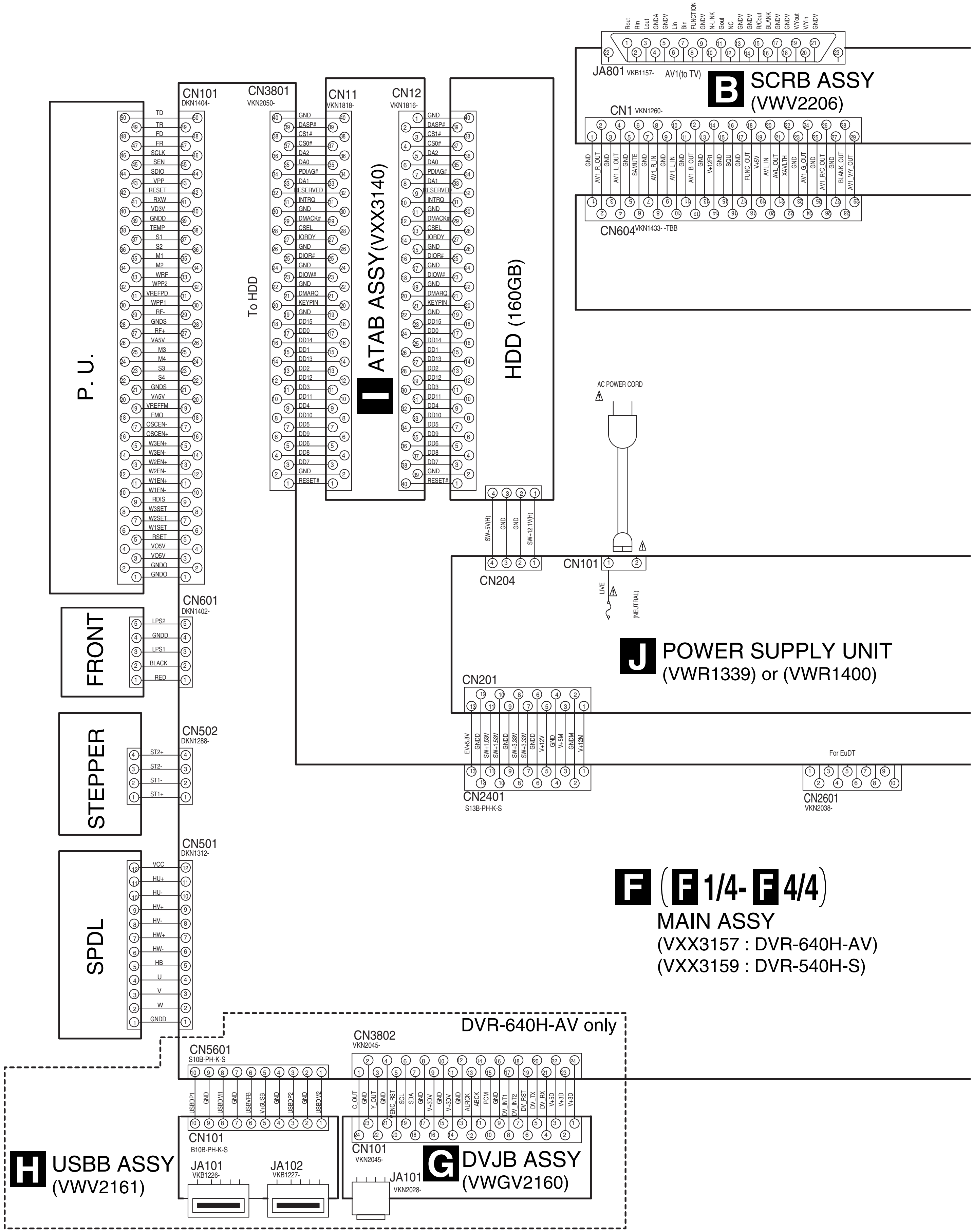
DVR-440H-S/DVR-540H-S/DVR-640H-S/DVR-440H-AV/DVR-640H-AV
: Refer to [05 DVR model list] No.A6-A17,A20-A26

ANTENNA IN
CVBS IN
S-Video IN
CVBS/S-Video
/RGB IN
(Euro Scart)
CVBS OUT
S-Video OUT
YPbPr OUT
(525I / 525P)
/RGB OUT
(Euro Scart)
TV TUNER UNIT
Tuner
Module
Input
Selector
&
Output
Driver
&
Euro
Scart
Interface
IC
YC
MIX
Euro
Scart
Inter
face
CVBS
/Y
C
Y
C
Y/G
Pb/B
Pr/R
DIGITAL UNIT
Y/C
Sep.
Block
Y
C
Detection
Block
Video Decoder
Block
Detected Result
Y,U,V
REC.656
Video
DAC
Block
Y
C
Y
Pb
Pr
I/P
Sel.
Y
Pb
Pr
Y
Pb
Pr
Interlace
Video
Encoder
Block
Progressive
Video
Encoder
Block
Micro-
Controller
Block
Encoder Control
Encoder
Block
MPEG
Enc.
/Dec.
Block
Recording Control
Data
CD/DVD
Enc/Dec
DSP
Micro-
Controller
SystemLSI
uPD61272
HDD Unit
DVD Unit
(ASP
&
PickUp
mecha)

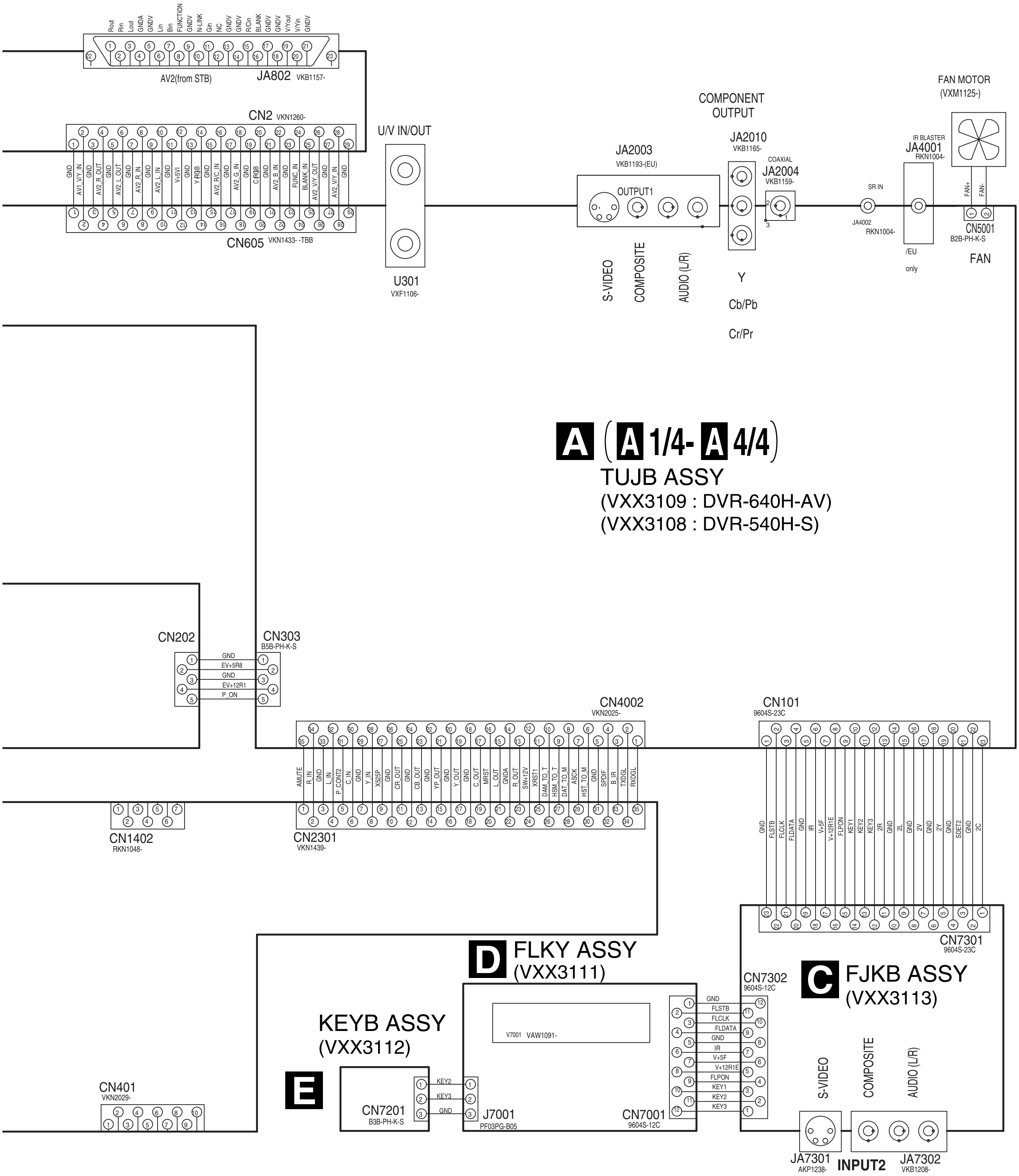
3.1.3 POWER BLOCK


SYPS
J
CN202
CN303
5 P_ON
4 EV+12.1V
3 GND
1 GND
2 EV+5.8V(T)
P401A
P402A
P201A
TUJB
A
IC5001
DCDC Con
V+31V
Tuner
U301
V+12R1E
V+9V
IC1001
V+12R1SW
FAN Circuit
FAN
Audio MUTE
RESET IC(Tu-con)
IC102
V+5R8E
V+5V
V+5F
V+5M
Tuner Con
IC101
V+5TU
SPDIF
V+5VI
Interface IC
IC100
V+5VO
FLKY
D
V+12V
BLUE LED
FLDC+
FLDC-
FL-28V
DC DC Con
FL TUBE
V7001
FL DRIVER
IC7001
RED LED
V+5F
Infrared Sensor SW
CN201
CN2401
5 EV+12.1V(J)
12 GND
13 EV+5.8V(M)
P204A
MAIN
F
V+12A
Audio LPF
IC5621
USB
IC4504
V+5AVI
Video buffer
INPUT Video filter
V+5A
V+3FE
Audio DAC IC3201
Audio ADC IC3101
FLASH IC1102
EMMA
IC1001
for I/O_buffer
P501A
7 SW+3.33V(M)
8 SW+3.33V(M)
SW+3.33V
V+3D
3R3V
V+5D
RS-232C
EJTAG
TC7SU04FU IC3102
TC74VHC157FT IC3103
TC7WH34FU IC3701
USB driver IC5701
SPDIF
EMMA_Video_Decorder External Filter
Pull-up for interface with Eriter,HDD (ATA)
M3, AD/DA/WBLSLICE
V2, EFMPLL/EFMCOMP
Y7, LVDS
Y8, APLL/DLYLINE/WCDLL
IC4511
V+3V
V_ADC
V_VENC
Video_Decorder_ADC
Video_Encorder
IC4512
V+2R5
V+DDR
2R5V
DDR_SDRAM
DDR x2
IC1201,IC1221
VREF_V
Video_DAC_Vref E8
VREF_D
DDR_VREF A15
10 SW+1.53V(M)
11 SW+1.53V(M)
6 GND
9 GND
V+1R5_IN
V+1R5
RESET IC
IC3707
1R5V
Core E5,F5,J9,J13,N9,N13,U5, U8,U14,U15
PVDD
System_PLL D1
VP VDD
VDEC PLL J19,K19
V(DSP)
R2,EFMPLL
V_WP1(DSP)
AA10,WAPLL/DLYLINE/WCDLL/ WRCHPLL/203MPLL
V+3A(DSP)
J20,VDEC HSCLAMP
V+3D(DSP)
L20,VDEC FSCLAMP
1 SW+1.21V(W)
2 GND
3 GND
4 SW+5V(W)
P202A
IC2401
V+12M
6ch MOTOR DRIVER
IC501
IC2402
V+5M
V+5L
IC4507
V+3FE
V+3A
RF
IC101
REFI
Vcc6
V+5S
Vcc1,8,9
Vcc2,3,4,5,7
CN203
1 SW+12.1V(H)
2 GND
3 GND
4 SW+5V(H)
VCC
VA5V
VO5V
VD3V
VREF21
VREFFM
V+5D
V+3D
G
HDD
SPDL
P.U.
DVJB

3.2 OVERALL WIRING DIAGRAM



JA801 VKB1157- AV1(to TV)
Rout Rin Lout GNDA GNDV Lin Bin FUNCTION GNDV N-LINK Gout NC GNDV GNDV R/Cout BLANK GNDV GNDV V/Yout V/Yin GNDV
B SCRB ASSY (VWV2206)
CN1 VKN1260-
GND AV1_R_OUT GND AV1_L_OUT GND SAMUTE GND AV1_R_IN GND AV1_L_IN GND AV1_B_OUT GND V+12R1 GND SQU GND FUNC_OUT V+5V AVL_IN AVL_OUT XAVLTH GND AV1_G_OUT GND AV1_R/C_OUT GND BLANK_OUT AV1_V/Y_OUT
CN604 VKN1433- -TBB
P. U.
CN101 DKN1404-
TD TR FD FR SCLK SEN SDIO VPP RESET RXW VD3V GNDD TEMP S1 S2 M1 M2 WRF WPP2 VREFPD WPP1 RF- GNDS RF+ VA5V M3 M4 S3 S4 GNDS VA5V VREFFM FMO OSCEN- OSCEN+ W3EN+ W3EN- W2EN+ W2EN- W1EN+ W1EN- RDIS W3SET W2SET W1SET RSET VO5V VO5V GNDO GNDO
CN3801 VKN2050-
To HDD
CN11 VKN1818-
CN12 VKN1816-
GND DASP# CS1# CS0# DA2 DA0 PDIAG# DA1 RESERVED INTRQ GND DMACK# CSEL IORDY GND DIOR# GND DIOW# GND DMARQ KEYPIN GND DD15 DD0 DD14 DD1 DD13 DD2 DD12 DD3 DD11 DD4 DD10 DD5 DD9 DD6 DD8 DD7 GND RESET#
I ATAB ASSY(VXX3140)
HDD (160GB)
AC POWER CORD
SW+5V(H) GND GND SW+12.1V(H)
CN204
CN101
LIVE
(NEUTRAL)
J POWER SUPPLY UNIT (VWR1339) or (VWR1400)
CN201
EV+5.8V GNDD SW+1.53V SW+1.53V GNDD SW+3.33V SW+3.33V GNDD V+12V GND V+5M GNDM V+12M
CN2401 S13B-PH-K-S
For EuDT
CN2601 VKN2038-
FRONT
CN601 DKN1402-
LPS2 GNDD LPS1 BLACK RED
STEPPER
CN502 DKN1288-
ST2+ ST2- ST1- ST1+
SPDL
CN501 DKN1312-
VCC HU+ HU- HV+ HV- HW+ HW- HB U V W GNDD
F (F 1/4- F 4/4) MAIN ASSY (VXX3157 : DVR-640H-AV) (VXX3159 : DVR-540H-S)
DVR-640H-AV only
CN5601 S10B-PH-K-S
USBDP1 GND USBDM1 GND USBVFB V+5USB GND USBDP2 GND USBDM2
CN101 B10B-PH-K-S
H USBB ASSY (VWV2161)
JA101 VKB1226-
JA102 VKB1227-
CN3802 VKN2045-
C_OUT GND Y_OUT GND ENC_RST SCL SDA GND V+3DV GND V+3DV GND ALRCK ABCK PCM GND DV_INT1 DV_INT2 DV_RST DV_TX DV_RX V+5D V+3D V+3D
CN101 VKN2045-
JA101 VKN2028-
G DVJB ASSY (VWGV2160)

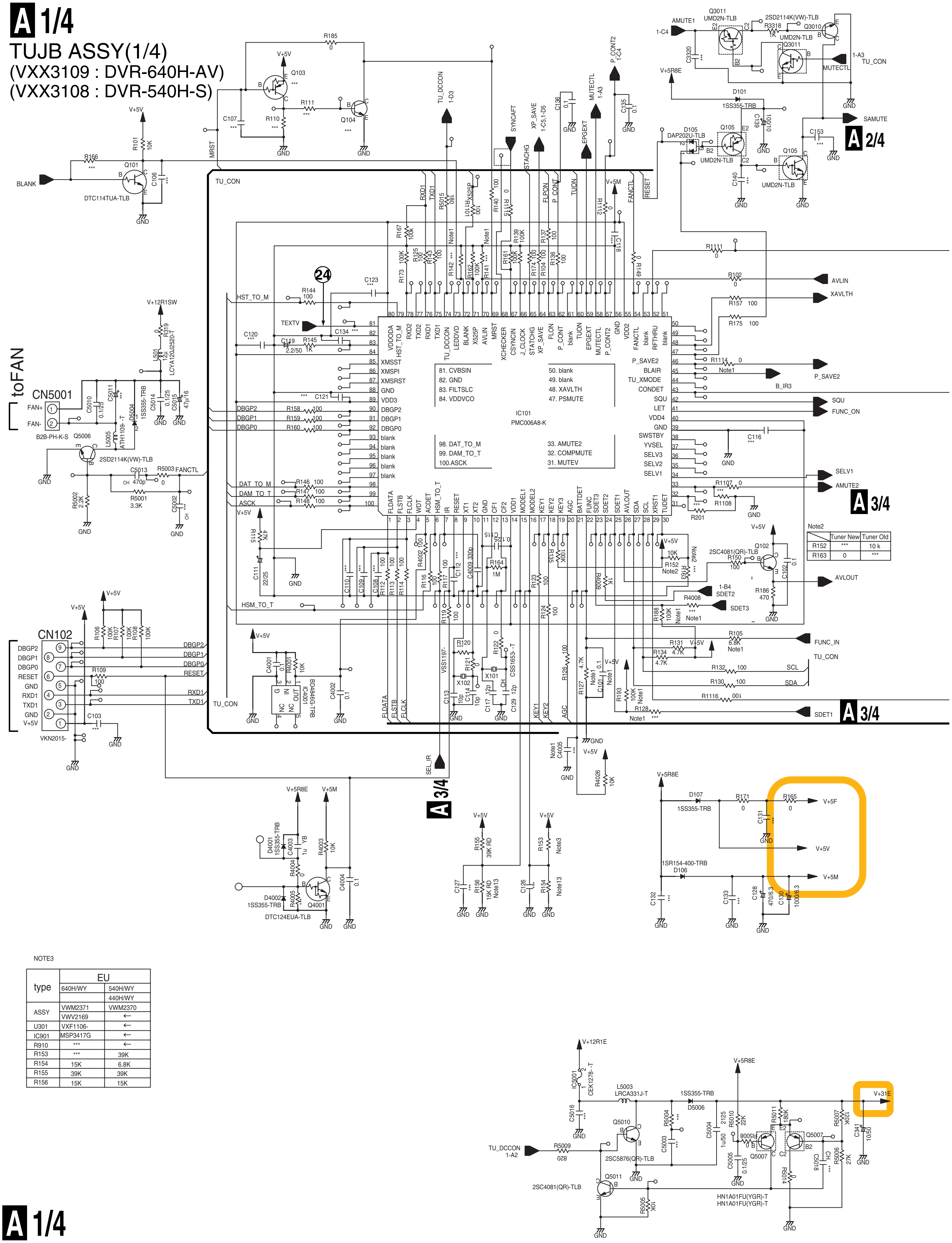

Rout
Rin
Lout
GNDA
GNDV
Lin
Bin
FUNCTION
GNDV
N-LINK
Gin
NC
GNDV
GNDV
R/Cin
BLANK
GNDV
GNDV
V/Yout
V/Yin
GNDV
AV2(from STB)
JA802 VKB1157-
CN2 VKN1260-
GND
AV1_V/Y_IN
GND
AV2_R_OUT
GND
AV2_L_OUT
GND
AV2_R_IN
GND
AV2_L_IN
GND
V+5VI
GND
Y RGB
GND
AV2_R/C_IN
GND
AV2_G_IN
GND
C RGB
GND
AV2_B_IN
GND
FUNC_IN
BLANK_IN
AV2_V/Y_OUT
GND
AV2_V/Y_IN
GND
CN605 VKN1433- -TBB
U/V IN/OUT
U301
VXF1106-
JA2003
VKB1193-(EU)
OUTPUT1
S-VIDEO
COMPOSITE
AUDIO (L/R)
COMPONENT OUTPUT
JA2010
VKB1165-
Y
Cb/Pb
Cr/Pr
COAXIAL
JA2004
VKB1159-
SR IN
JA4002
RKN1004-
IR BLASTER
JA4001
RKN1004-
/EU
only
FAN MOTOR
(VXM1125-)
FAN+
FAN-
CN5001
B2B-PH-K-S
FAN
A (A 1/4- A 4/4)
TUJB ASSY
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)
CN202
CN303
B5B-PH-K-S
GND
EV+5R8
GND
EV+12R1
P_ON
CN4002
VKN2025-
CN101
9604S-23C
AMUTE
R_IN
GND
L_IN
P_CONT2
C_IN
GND
Y_IN
XS25P
GND
CR_OUT
GND
CB_OUT
GND
YP_OUT
GND
Y_OUT
GND
C_OUT
MRST
L_OUT
GNDA
R_OUT
SW+12V
XRST1
DAM_TO_T
HSM_TO_T
DAT_TO_M
ASCK
HST_TO_M
GND
SPDIF
B_IR
TXDGL
RXDGL
CN1402
RKN1048-
CN2301
VKN1439-
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
KEY3
2R
GND
2L
GND
2V
GND
2Y
GND
SDET2
GND
2C
CN7301
9604S-23C
D FLKY ASSY
(VXX3111)
V7001 VAW1091-
CN7302
9604S-12C
C FJKB ASSY
(VXX3113)
KEYB ASSY
(VXX3112)
E
CN7201
B3B-PH-K-S
KEY2
KEY3
GND
J7001
PF03PG-B05
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
KEY3
CN7001
9604S-12C
S-VIDEO
COMPOSITE
AUDIO (L/R)
CN401
VKN2029-
JA7301
AKP1238-
INPUT2
JA7302
VKB1208-
A
B
C
D
E
F

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ▭ : The power supply is shown with the marked box.

3.3 TUJB ASSY (1/4)

A 1/4

TUJB ASSY(1/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)



TU_CON
IC101
PMC006A8-K
81. CVBSIN
82. GND
83. FILTSLC
84. VDDVCO
50. blank
49. blank
48. XAVLTH
47. PSMUTE
98. DAT_TO_M
99. DAM_TO_T
100.ASCK
33. AMUTE2
32. COMPMUTE
31. MUTEV
CN5001
B2B-PH-K-S
toFAN
FAN+
FAN-
CN102
VKN2015-
DBGP2
DBGP1
DBGP0
RESET
GND
RXD1
TXD1
V+5V
BLANK
Q101
DTC114TUA-TLB
Q103
Q104
Q5006
2SD2114K(VW)-TLB
FANCTL
MRST
TU_DCCON 1-D3
SYNCAFT
XP_SAVE 1-C5,1-D5
EPGEXT
MUTECTL 1-A3
P_CONT2 1-C4
AMUTE1 1-C4
Q3011 UMD2N-TLB
2SD2114K(VW)-TLB
Q3010
1-A3 TU_CON
MUTECTL
D101 1SS355-TRB
D105 DAP202U-TLB
Q105 UMD2N-TLB
SAMUTE
A 2/4
AVLIN
XAVLTH
P_SAVE2
B_IR3
SQU
FUNC_ON
SELV1
AMUTE2
A 3/4
Q102 2SC4081(QR)-TLB
AVLOUT
1-B4 SDET2
SDET3
FUNC_IN
TU_CON
SCL
SDA
SDET1
A 3/4
TEXTV
HST_TO_M
HSM_TO_T
DAT_TO_M
DAM_TO_T
ASCK
IC4001 BD4846G-TRB
X101 CSS1653-T
X102
SEL_IR
A 3/4
V+5R8E
V+5M
D4001 1SS355-TRB
D4002 1SS355-TRB
Q4001 DTC124EUA-TLB
D107 1SS355-TRB
D106 1SR154-400-TRB
V+5F
V+5V
V+5M
V+12R1E
IC5001 CEK1278-T
L5003 LRCA331J-T
D5006 1SS355-TRB
Q5010 2SC5876(QR)-TLB
Q5011 2SC4081(QR)-TLB
TU_DCCON 1-A2
Q5007 HN1A01FU(YGR)-T
V+31E

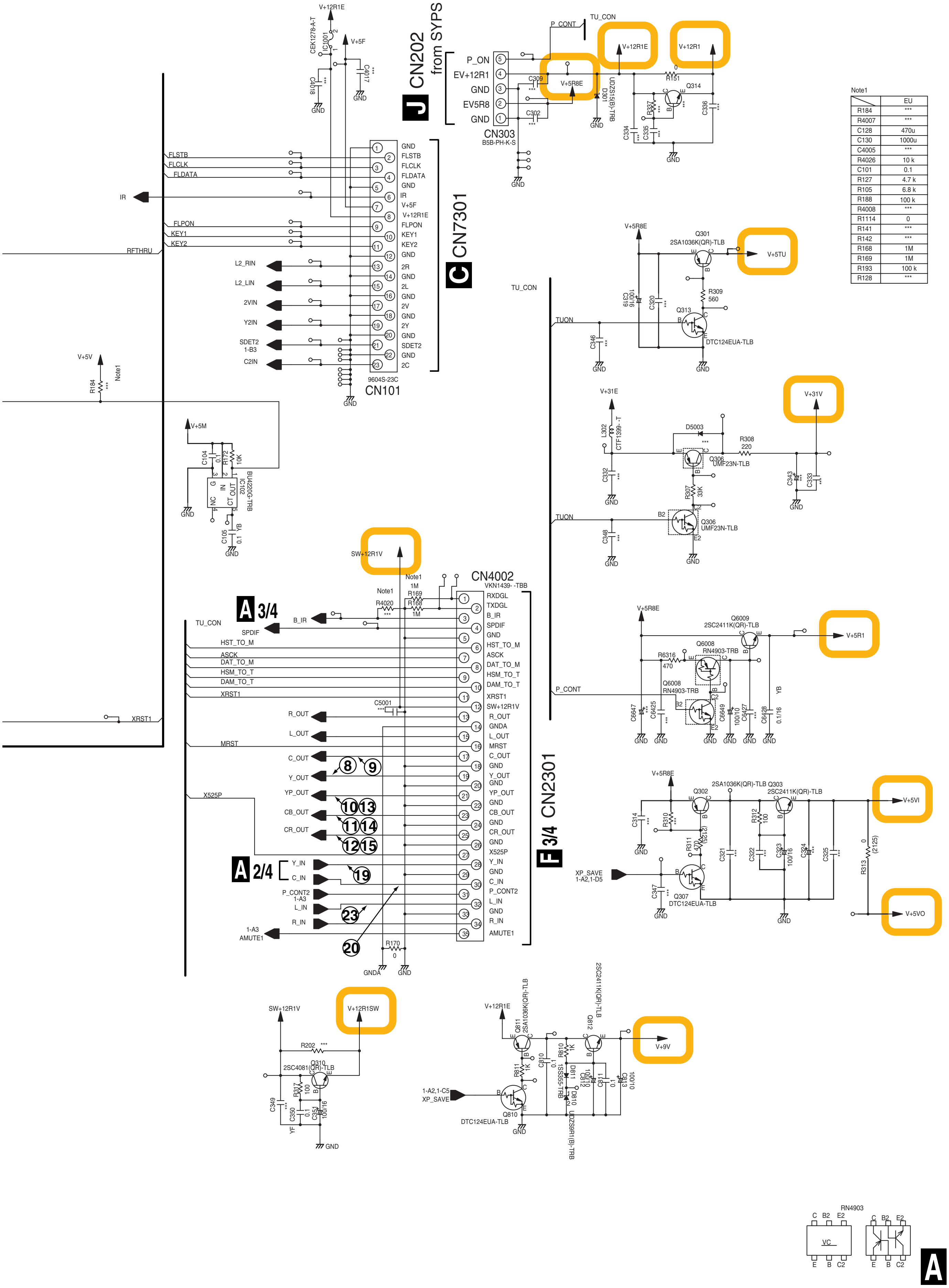
Note2

	Tuner New	Tuner Old
R152	***	10 k
R163	0	***

NOTE3

type	EU	
	640H/WY	540H/WY
		440H/WY
ASSY	VWM2371	VWM2370
	VWV2169	←
U301	VXF1106-	←
IC901	MSP3417G	←
R910	***	←
R153	***	39K
R154	15K	6.8K
R155	39K	39K
R156	15K	15K

A 1/4


5
6
7
8
A
B
C
D
E
F
J CN202 from SYPS
P_ON
EV+12R1
GND
EV5R8
GND
CN303
B5B-PH-K-S
P_CONT
TU_CON
V+12R1E
V+12R1
V+5R8E
C309
C302
D301
UDZS15(B)-TRB
R151
Q314
R337
C334
C335
C336
GND
V+12R1E
CEK1278-A-T
IC1001
V+5F
C4018
C4017
C CN7301
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
GND
2R
GND
2L
GND
2V
GND
2Y
GND
SDET2
GND
2C
9604S-23C
CN101
IR
FLPON
KEY1
KEY2
RFTHRU
L2_RIN
L2_LIN
2VIN
Y2IN
SDET2
1-B3
C2IN
V+5V
R184
Note1
V+5M
C104
R172
10K
IC102
BU4220G-TRB
NC
CT
OUT
IN
G
C105
YB
V+5R8E
Q301
2SA1036K(QR)-TLB
V+5TU
C319
100/16
C320
R309
560
Q313
DTC124EUA-TLB
TUON
C346
V+31E
L302
CTF1399-T
D5003
R308
220
Q306
UMF23N-TLB
V+31V
C332
C343
C333
R307
33K
B2
C348
SW+12R1V
CN4002
VKN1439- -TBB
Note1
1M
R169
R168
1M
R4020
RXDGL
TXDGL
B_IR
SPDIF
GND
HST_TO_M
ASCK
DAT_TO_M
HSM_TO_T
DAM_TO_T
XRST1
SW+12R1V
R_OUT
GNDA
L_OUT
MRST
C_OUT
GND
Y_OUT
GND
YP_OUT
GND
CB_OUT
GND
CR_OUT
GND
X525P
Y_IN
GND
C_IN
P_CONT2
L_IN
GND
R_IN
AMUTE1
F 3/4 CN2301
A 3/4
TU_CON
B_IR
SPDIF
XRST1
C5001
R_OUT
L_OUT
MRST
C_OUT
Y_OUT
YP_OUT
CB_OUT
CR_OUT
X525P
A 2/4
Y_IN
C_IN
P_CONT2
1-A3
L_IN
R_IN
1-A3
AMUTE1
8
9
10
13
11
14
12
15
19
23
20
R170
0
GNDA
V+5R8E
Q6009
2SC2411K(QR)-TLB
V+5R1
Q6008
RN4903-TRB
R6316
470
P_CONT
C6647
C6425
C6649
100/10
C6427
C6428
0.1/16
YB
V+5R8E
2SA1036K(QR)-TLB Q303
2SC2411K(QR)-TLB
Q302
V+5VI
C314
R310
R312
100
R311
C321
C322
C323
100/16
C324
C325
R313
0
(2125)
XP_SAVE
1-A2,1-D5
C347
Q307
DTC124EUA-TLB
V+5VO
SW+12R1V
V+12R1SW
R202
Q310
2SC4081(QR)-TLB
R317
100
C349
C350
C351
100/16
YF
V+12R1E
Q811
2SA1036K(QR)-TLB
Q812
2SC2411K(QR)-TLB
V+9V
R810
1K
R811
C810
0.1
D811
1SS355-TRB
C812
100/10
C811
C813
100/10
D810
UDZS9R1(B)-TRB
1-A2,1-C5
XP_SAVE
Q810
DTC124EUA-TLB
RN4903
C B2 E2
VC
E B C2

Note1

	EU
R184	***
R4007	***
C128	470u
C130	1000u
C4005	***
R4026	10 k
C101	0.1
R127	4.7 k
R105	6.8 k
R188	100 k
R4008	***
R1114	0
R141	***
R142	***
R168	1M
R169	1M
R193	100 k
R128	***

A 1/4

3.4 TUJB ASSY (2/4)

A 2/4 TUJB ASSY(2/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)

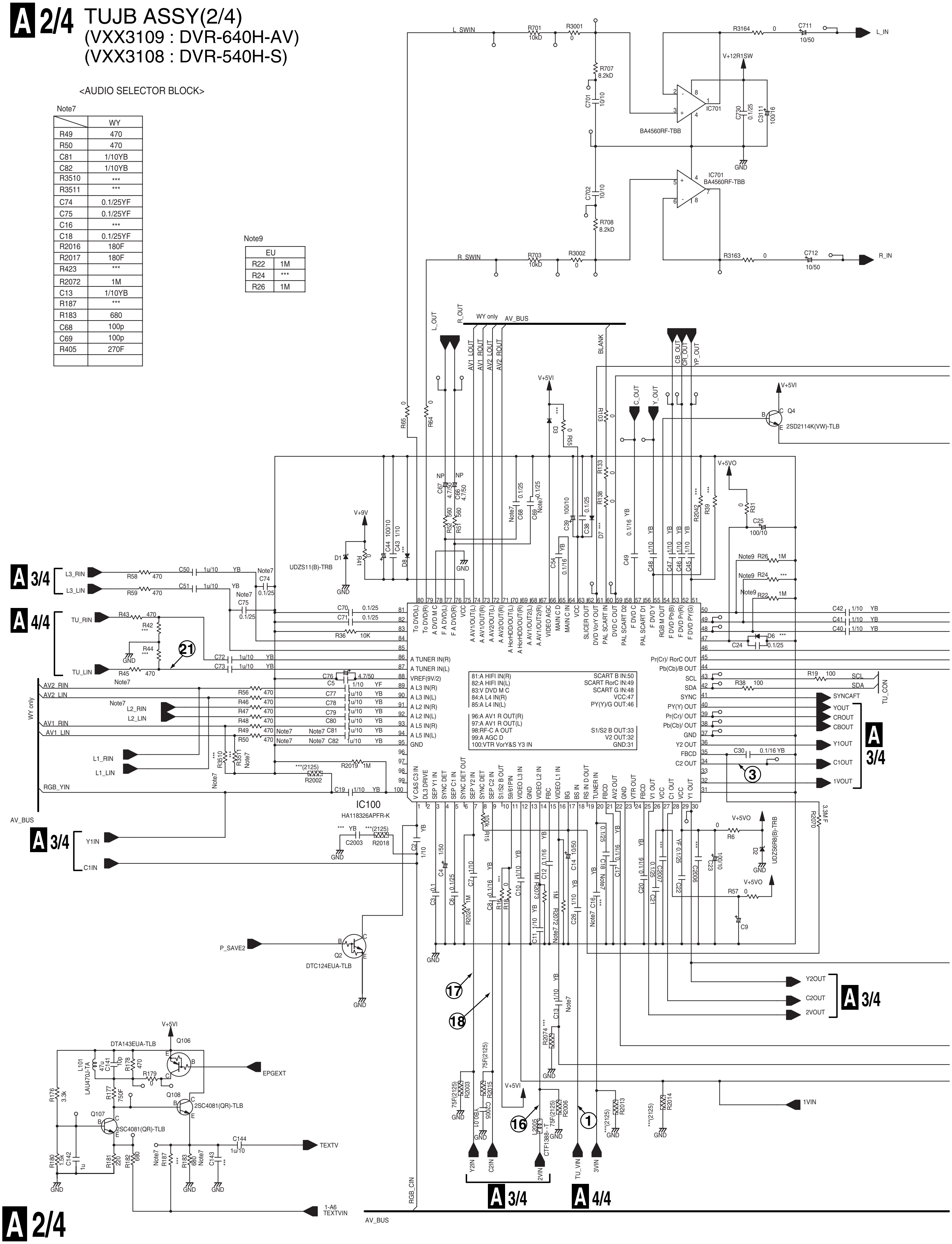
<AUDIO SELECTOR BLOCK>

Note7

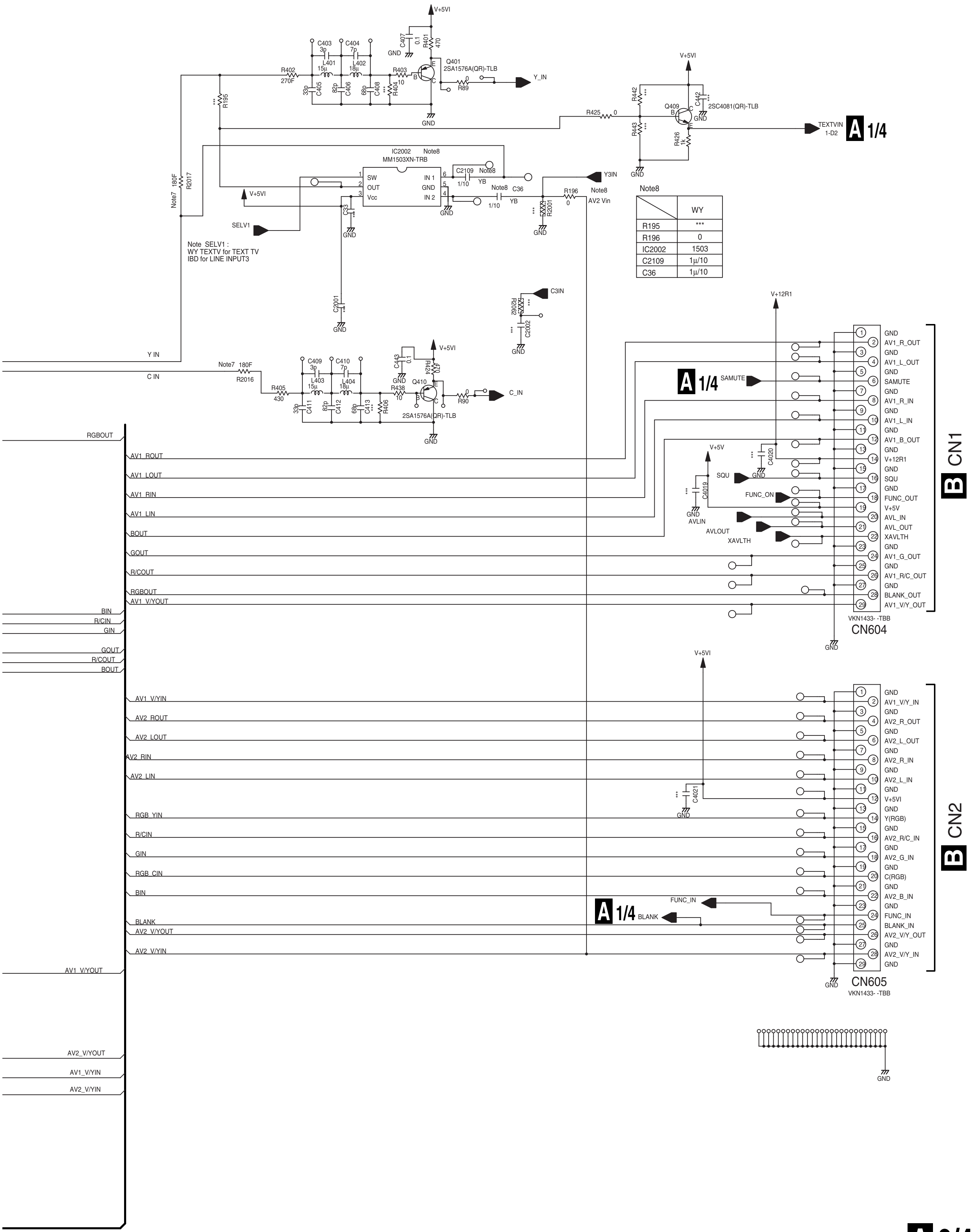
	WY
R49	470
R50	470
C81	1/10YB
C82	1/10YB
R3510	***
R3511	***
C74	0.1/25YF
C75	0.1/25YF
C16	***
C18	0.1/25YF
R2016	180F
R2017	180F
R423	***
R2072	1M
C13	1/10YB
R187	***
R183	680
C68	100p
C69	100p
R405	270F

Note9

	EU
R22	1M
R24	***
R26	1M


L_SWIN
R701 10kD
R3001 0
R707 8.2kD
C701 10/10
IC701
BA4560RF-TBB
V+12R1SW
C730 0.1/25
C3111 100/16
GND
R3164 0
C711 10/50
L_IN
C702 10/10
R708 8.2kD
R_SWIN
R703 10kD
R3002 0
R3163 0
C712 10/50
R_IN
L_OUT
R_OUT
WY only
AV_BUS
AV1_LOUT
AV1_ROUT
AV2_LOUT
AV2_ROUT
BLANK
CB_OUT
CR_OUT
YP_OUT
C_OUT
Y_OUT
V+5VI
Q4
2SD2114K(VW)-TLB
V+5VO
R31 0
C25 100/10
V+9V
D1
UDZS11(B)-TRB
R41
C44 100/10
C43 1/10
D8
R52 560
R51 560
C67 4.7/50
C66 4.7/50
NP
C68 0.1/25
C69 0.1/25
C39 100/10
C38 0.1/25
R55 0
D3
R103 0
R133 0
R138 0
D7
C49 0.1/16 YB
C48 1/10 YB
C47 1/10 YB
C46 1/10 YB
C45 1/10 YB
R2042
R39
A 3/4
L3_RIN
L3_LIN
R58 470
R59 470
C50 1u/10 YB
C51 1u/10 YB
C74 0.1/25
C75 0.1/25
A 4/4
TU_RIN
TU_LIN
R43 470
R42
R44
R45 470
C72 1u/10 YB
C73 1u/10 YB
C70 0.1/25
C71 0.1/25
R36 10K
C76 4.7/50
C5 1/10 YF
C77 1u/10 YB
C78 1u/10 YB
C79 1u/10 YB
C80 1u/10 YB
C81 1u/10 YB
C82 1u/10 YB
AV2_RIN
AV2_LIN
AV1_RIN
AV1_LIN
L2_RIN
L2_LIN
L1_RIN
L1_LIN
R56 470
R46 470
R47 470
R48 470
R49 470
R50 470
R3510
R3511
R2019 1M
R2002
C19 1/10 YB
RGB_YIN
IC100
HA118326APFR-K
To DVD(L)
To DVD(R)
A DVD M C
F A DVD(L)
F A DVD(R)
VCC
A AV1OUT(L)
A AV1OUT(R)
A AV2OUT(L)
A AV2OUT(R)
A HorHDD/OUT(L)
A HorHDD/OUT(R)
A AV1/OUT2(L)
A AV1/OUT2(R)
VIDEO AGC
MAIN C D
MAIN C IN
VCC
SLICER OUT
DVD VorY OUT
PAL SCART IN
DVD C OUT
PAL SCART D2
PAL SCART D1
F DVD C
F DVD Y
RGB M OUT
F DVD Pb(B)
F DVD Pr(R)
F DVD PY(G)
A TUNER IN(R)
A TUNER IN(L)
VREF(9V/2)
A L3 IN(R)
A L3 IN(L)
A L2 IN(R)
A L2 IN(L)
A L5 IN(R)
A L5 IN(L)
GND
81:A HIFI IN(R)
82:A HIFI IN(L)
83:V DVD M C
84:A L4 IN(R)
85:A L4 IN(L)
96:A AV1 R OUT(R)
97:A AV1 R OUT(L)
98:RF-C A OUT
99:A AGC D
100:VTR VorY&S Y3 IN
SCART B IN:50
SCART RorC IN:49
SCART G IN:48
VCC:47
PY(Y)/G OUT:46
S1/S2 B OUT:33
V2 OUT:32
GND:31
Pr(Cr)/ RorC OUT
Pb(Cb)/B OUT
SCL
SDA
SYNC
PY(Y) OUT
Pr(Cr)/ OUT
Pb(Cb)/ OUT
GND
Y2 OUT
FBCD
C2 OUT
V C&S C3 IN
DL3 DRIVE
SEP Y1 IN
SYNC DET
SEP C1 IN
SYNC DET OUT
SEP Y2 IN
SYNC DET
SEP C2 IN
S1/S2 B OUT
59/61PIN
VIDEO L3 IN
GND
VIDEO L2 IN
FBC
VIDEO L1 IN
BG
BS IN
RS IN D OUT
TUNER IN
FBCD
AV2 OUT
GND
VTR OUT
FBCD
V1 OUT
VCC
C1 OUT
VCC
Y1 OUT
R26 1M
R24
R22 1M
C42 1/10 YB
C41 1/10 YB
C40 1/10 YB
D6
C24 0.1/25
R19 100
R38 100
SCL
SDA
TU_CON
SYNCAFT
YOUT
CROUT
CBOUT
Y1OUT
C30 0.1/16 YB
C1OUT
1VOUT
A 3/4
R2070 3.3M F
A 3/4
Y1IN
C1IN
C2003
R2018
C2 1/10
V+5VO
R6 0
D2
UDZS6R8(B)-TRB
V+5VO
R57 0
C9
P_SAVE2
Q2
DTC124EUA-TLB
GND
Y2OUT
C2OUT
2VOUT
A 3/4
R2074
C13 1/10 YB
1VIN
R2003 75F(2125)
R2015 75F(2125)
C2005
V+5VI
L2005 CTF1388-T
R2006 75F(2125)
R2013
R2014
Y2IN
C2IN
2VIN
TU_VIN
3VIN
A 3/4
A 4/4
RGB_CIN
AV_BUS
V+5VI
DTA143EUA-TLB
Q106
L101 LAU470J-TA
C141 47u
R178 470
R179 0
R176 3.3k
R177 750F
Q108 2SC4081(QR)-TLB
Q107 2SC4081(QR)-TLB
EPGEXT
C144 1u/10
TEXTV
R180 1.5K
C142 1u
R181 220
R182 680
R187
R183 680
C143
1-A6 TEXTVIN
①
③
⑯
⑰
⑱
㉑

A 2/4

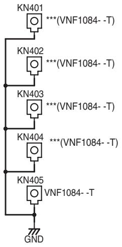

A
B
C
D
E
F
V+5VI
C407 0.1
R401 470
GND
C403 3p
C404 7p
L401 15µ
L402 18µ
R402 270F
R403 10
Q401 2SA1576A(QR)-TLB
Y_IN
R89 0
33p C405
82p C406
68p C408
R404
R195
GND
V+5VI
R442
C442
Q409
2SC4081(QR)-TLB
R425 0
R443
R426 1k
TEXTVIN 1-D2
A 1/4
IC2002 Note8
MM1503XN-TRB
SW
OUT
Vcc
IN 1
GND
IN 2
C2109 Note8 1/10 YB
Note8 C36 1/10 YB
Y3IN
R196 0
Note8 AV2 Vin
R2001
V+5VI
SELV1
C33
Note7 180F R2017
Note SELV1 :
WY TEXTV for TEXT TV
IBD for LINE INPUT3
C2001
C3IN
R2002
C2002
Y IN
C IN
Note7 180F R2016
R405 430
C409 3p
C410 7p
L403 15µ
L404 18µ
C443 0.1
R424 470
R438 10
Q410
2SA1576A(QR)-TLB
33p C411
82p C412
68p C413
R406
R90 0
C_IN
V+5VI
V+12R1
RGBOUT
AV1_ROUT
AV1_LOUT
AV1_RIN
AV1_LIN
BOUT
GOUT
R/COUT
RGBOUT
AV1_V/YOUT
BIN
R/CIN
GIN
GOUT
R/COUT
BOUT
SAMUTE
A 1/4
V+5V
C4020
C4019
SQU
FUNC_ON
AVLIN
AVLOUT
XAVLTH
GND
AV1_R_OUT
GND
AV1_L_OUT
GND
SAMUTE
GND
AV1_R_IN
GND
AV1_L_IN
GND
AV1_B_OUT
GND
V+12R1
GND
SQU
GND
FUNC_OUT
V+5V
AVL_IN
AVL_OUT
XAVLTH
GND
AV1_G_OUT
GND
AV1_R/C_OUT
GND
BLANK_OUT
AV1_V/Y_OUT
VKN1433- -TBB
CN604
B CN1
V+5VI
AV1_V/YIN
AV2_ROUT
AV2_LOUT
AV2_RIN
AV2_LIN
C4021
RGB_YIN
R/CIN
GIN
RGB_CIN
BIN
BLANK
AV2_V/YOUT
AV2_V/YIN
FUNC_IN
A 1/4 BLANK
GND
AV1_V/Y_IN
GND
AV2_R_OUT
GND
AV2_L_OUT
GND
AV2_R_IN
GND
AV2_L_IN
GND
V+5VI
GND
Y(RGB)
GND
AV2_R/C_IN
GND
AV2_G_IN
GND
C(RGB)
GND
AV2_B_IN
GND
FUNC_IN
BLANK_IN
AV2_V/Y_OUT
GND
AV2_V/Y_IN
GND
CN605
VKN1433- -TBB
B CN2
AV1_V/YOUT
AV2_V/YOUT
AV1_V/YIN
AV2_V/YIN
GND

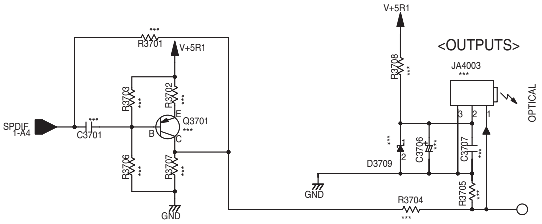
Note8

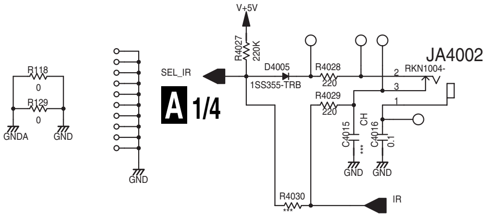
	WY
R195	***
R196	0
IC2002	1503
C2109	1µ/10
C36	1µ/10

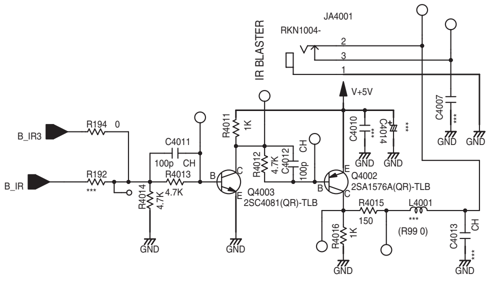
A 2/4

3.5 TUJB ASSY(3/4)


KN401
***(VNF1084- -T)
KN402
***(VNF1084- -T)
KN403
***(VNF1084- -T)
KN404
***(VNF1084- -T)
KN405
VNF1084- -T
GND

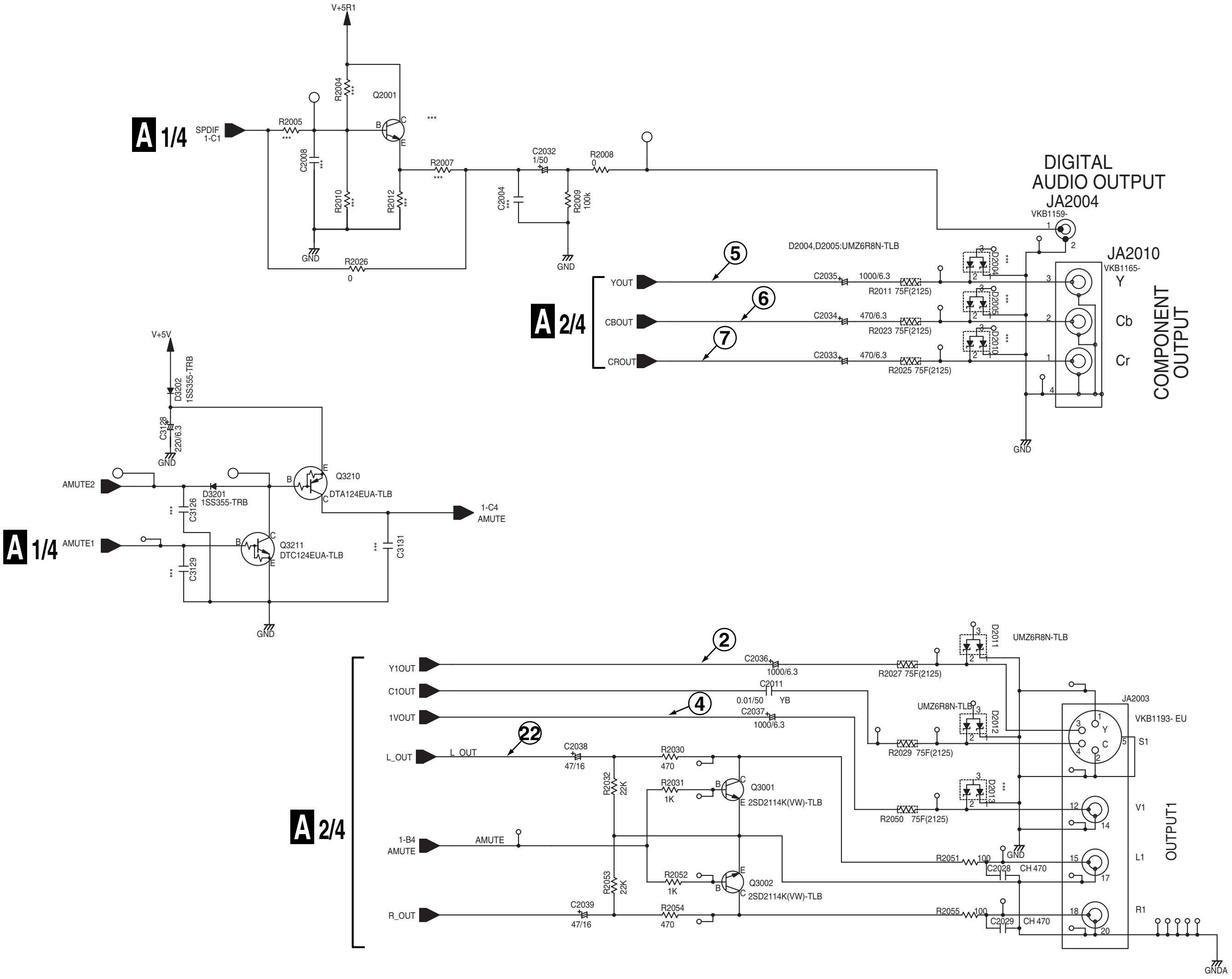

SPDIF
1-A4
C3701
***
R3701
***
V+5R1
R3703
***
R3702
***
Q3701
***
B
E
C
R3706
***
R3707
***
GND
V+5R1
R3708
***
<OUTPUTS>
JA4003
***
OPTICAL
3
2
1
***
D3709
C3706
***
C3707
***
GND
R3705
***
R3704
***


R118
0
R129
0
GNDA
GND
GND
SEL_IR
A 1/4
V+5V
R4027
220K
D4005
1SS355-TRB
R4028
220
R4029
220
JA4002
RKN1004-
2
3
1
C4015
***
CH
C4016
0.1
GND
GND
R4030
***
IR


JA4001
RKN1004-
IR BLASTER
2
3
1
V+5V
C4007
***
GND
GND
B_IR3
R194 0
B_IR
R192
***
C4011
100p CH
R4013
4.7K
R4014
4.7K
GND
R4011
1K
R4012
4.7K
C4012
100p
CH
B
C
E
Q4003
2SC4081(QR)-TLB
GND
C4010
***
C4014
***
GND
GND
E
B
C
Q4002
2SA1576A(QR)-TLB
R4015
150
L4001
***
(R99 0)
R4016
1K
GND
C4013
CH
***
GND

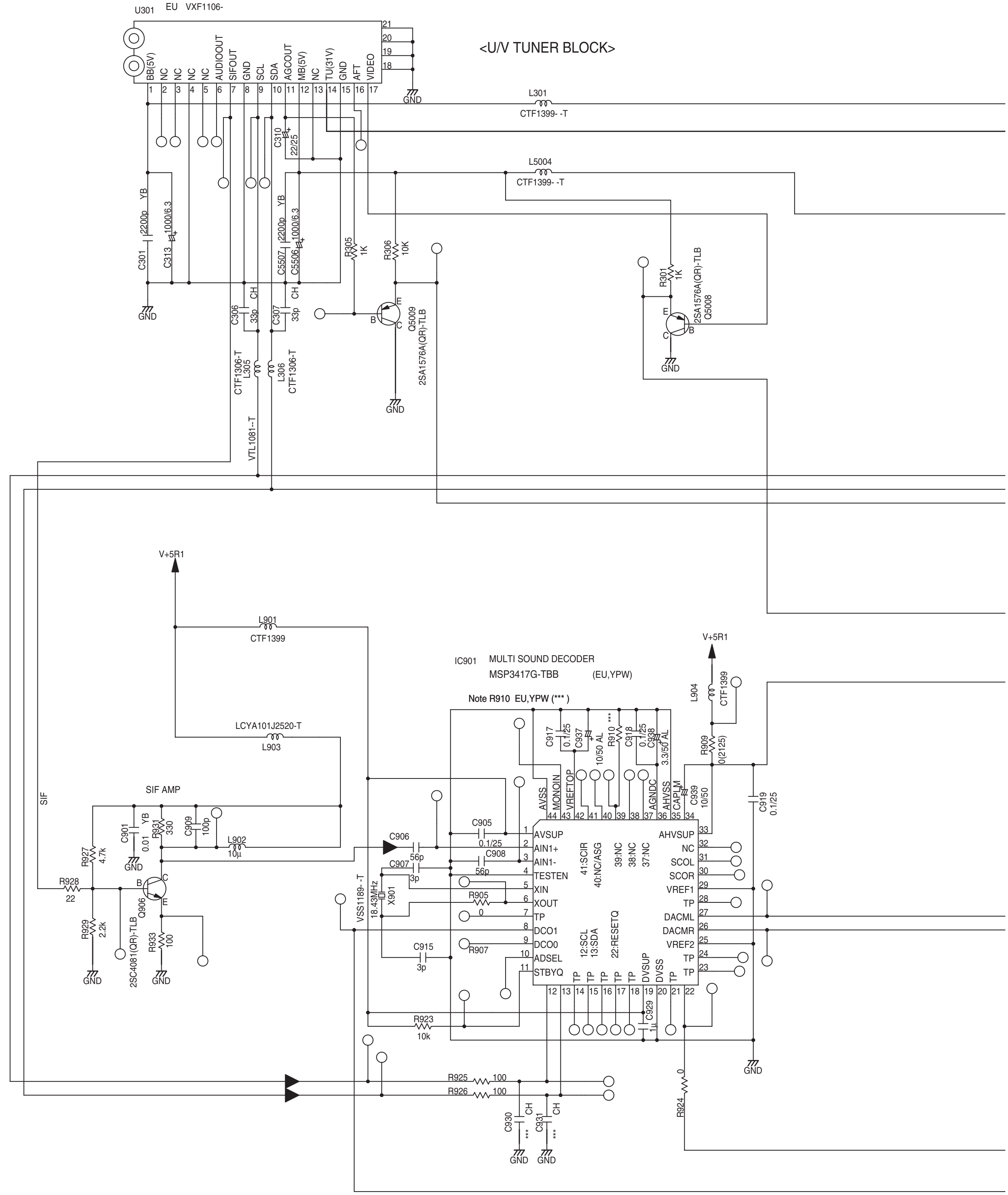
A 3/4

A 3/4 TUJB ASSY(3/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)


V+5R1
R2004
Q2001
A 1/4
SPDIF 1-C1
R2005
C2008
R2010
R2012
R2007
C2032 1/50
R2008 0
C2004
R2009 100k
GND
R2026 0
DIGITAL AUDIO OUTPUT
JA2004
VKB1159-
D2004,D2005:UMZ6R8N-TLB
5
6
7
A 2/4
YOUT
CBOUT
CROUT
C2035 1000/6.3
R2011 75F(2125)
C2034 470/6.3
R2023 75F(2125)
C2033 470/6.3
R2025 75F(2125)
D2004
D2005
D2010
JA2010
VKB1165-
Y
Cb
Cr
COMPONENT OUTPUT
V+5V
D3202 1SS355-TRB
C3128 220/6.3
AMUTE2
D3201 1SS355-TRB
C3126
Q3210 DTA124EUA-TLB
1-C4 AMUTE
A 1/4
AMUTE1
Q3211 DTC124EUA-TLB
C3129
C3131
2
Y1OUT
C1OUT
1VOUT
4
22
C2036 1000/6.3
R2027 75F(2125)
D2011
UMZ6R8N-TLB
C2011 0.01/50 YB
C2037 1000/6.3
UMZ6R8N-TLB
D2012
R2029 75F(2125)
JA2003
VKB1193- EU
S1
L_OUT
C2038 47/16
R2030 470
R2032 22K
R2031 1K
Q3001 2SD2114K(VW)-TLB
D2013
R2050 75F(2125)
V1
OUTPUT1
1-B4 AMUTE
R2051 100
C2028 CH 470
L1
R2053 22K
R2052 1K
Q3002 2SD2114K(VW)-TLB
R_OUT
C2039 47/16
R2054 470
R2055 100
C2029 CH 470
R1
GNDA

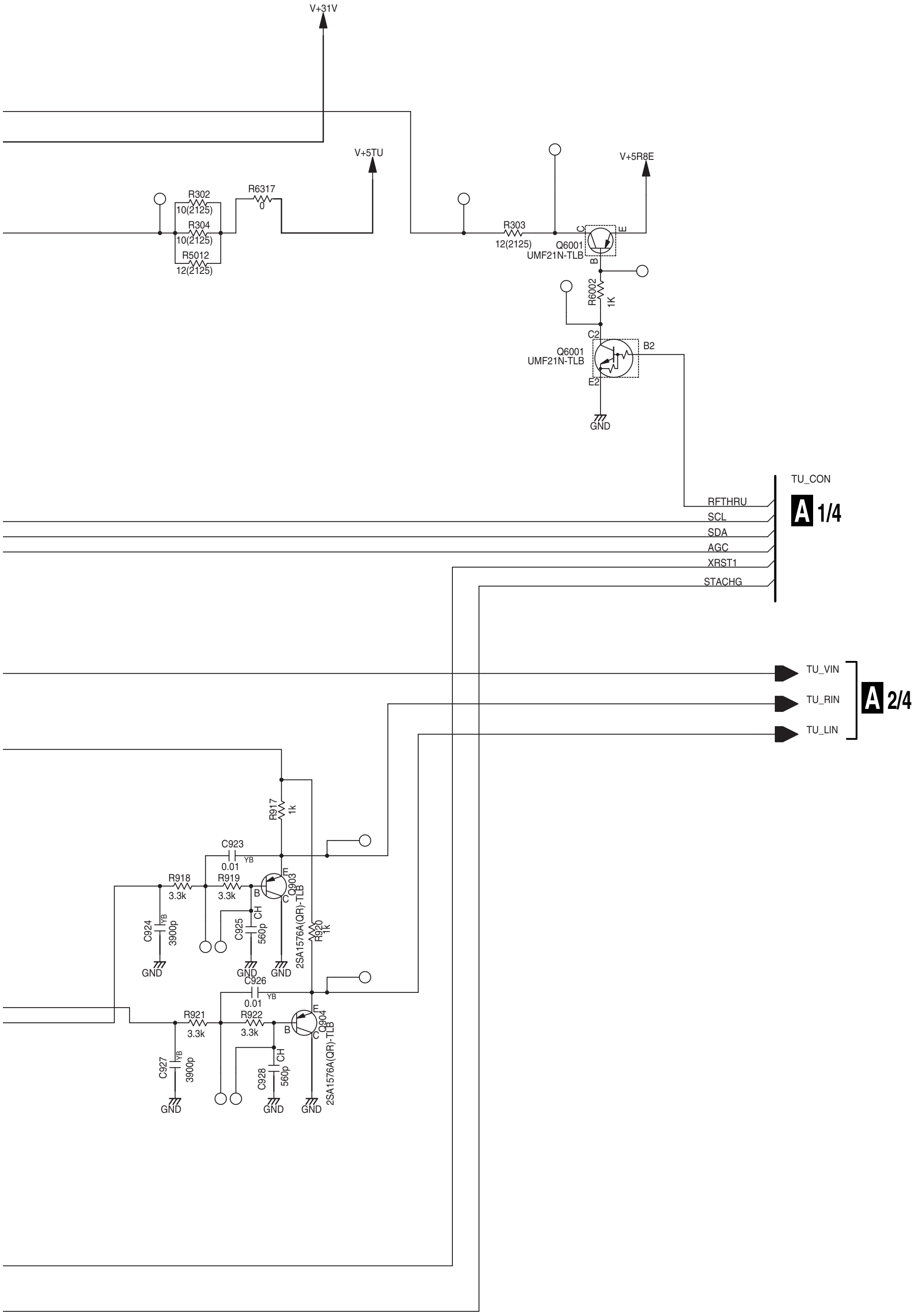
3.6 TUJB ASSY(4/4)

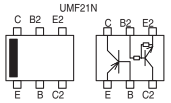
A 4/4 TUJB ASSY(4/4)
(VXX3109 : DVR-640H-AV)
(VXX3108 : DVR-540H-S)



U301 EU VXF1106-
<U/V TUNER BLOCK>
BB(5V)
NC
AUDIOOUT
SIFOUT
GND
SCL
SDA
AGCOUT
MB(5V)
TU(31V)
AFT
VIDEO
L301 CTF1399- -T
L5004 CTF1399- -T
C310 22/25
C301 2200p YB
C313 1000/6.3
C5507 2200p YB
C5506 1000/6.3
R305 1K
R306 10K
C306 CH 33p
C307 CH 33p
Q5009 2SA1576A(QR)-TLB
R301 1K
Q5008 2SA1576A(QR)-TLB
L305 CTF1306-T
L306 CTF1306-T
VTL1081--T
GND
V+5R1
L901 CTF1399
L903 LCYA101J2520-T
SIF
SIF AMP
C901 0.01 YB
R931 330
C909 100p
L902 10µ
R927 4.7k
R928 22
R929 2.2k
Q906 2SC4081(QR)-TLB
R933 100
IC901 MULTI SOUND DECODER
MSP3417G-TBB (EU,YPW)
Note R910 EU,YPW (***)
C917 0.1/25
C937 10/50 AL
R910 ***
C918 0.1/25
C938 3.3/50 AL
C939 10/50
R909 0(2125)
L904 CTF1399
C919 0.1/25
C905 0.1/25
C906 56p
C908 56p
C907 3p
X901 18.43MHz
VSS1189- -T
R905 0
R907
C915 3p
R923 10k
C929 1µ
R925 100
R926 100
C930 CH ***
C931 CH ***
R924 0
1 AVSUP
2 AIN1+
3 AIN1-
4 TESTEN
5 XIN
6 XOUT
7 TP
8 DCO1
9 DCO0
10 ADSEL
11 STBYQ
12:SCL
13:SDA
22:RESETQ
41:SCIR
40:NC/ASG
39:NC
38:NC
37:NC
44 AVSS
43 MONOIN
42 VREFTOP
36 AGNDC
35 AHVSS
34 CAPLM
33 AHVSUP
32 NC
31 SCOL
30 SCOR
29 VREF1
28 TP
27 DACML
26 DACMR
25 VREF2
24 TP
23 TP
19 DVSUP
20 DVSS
21 TP

A 4/4

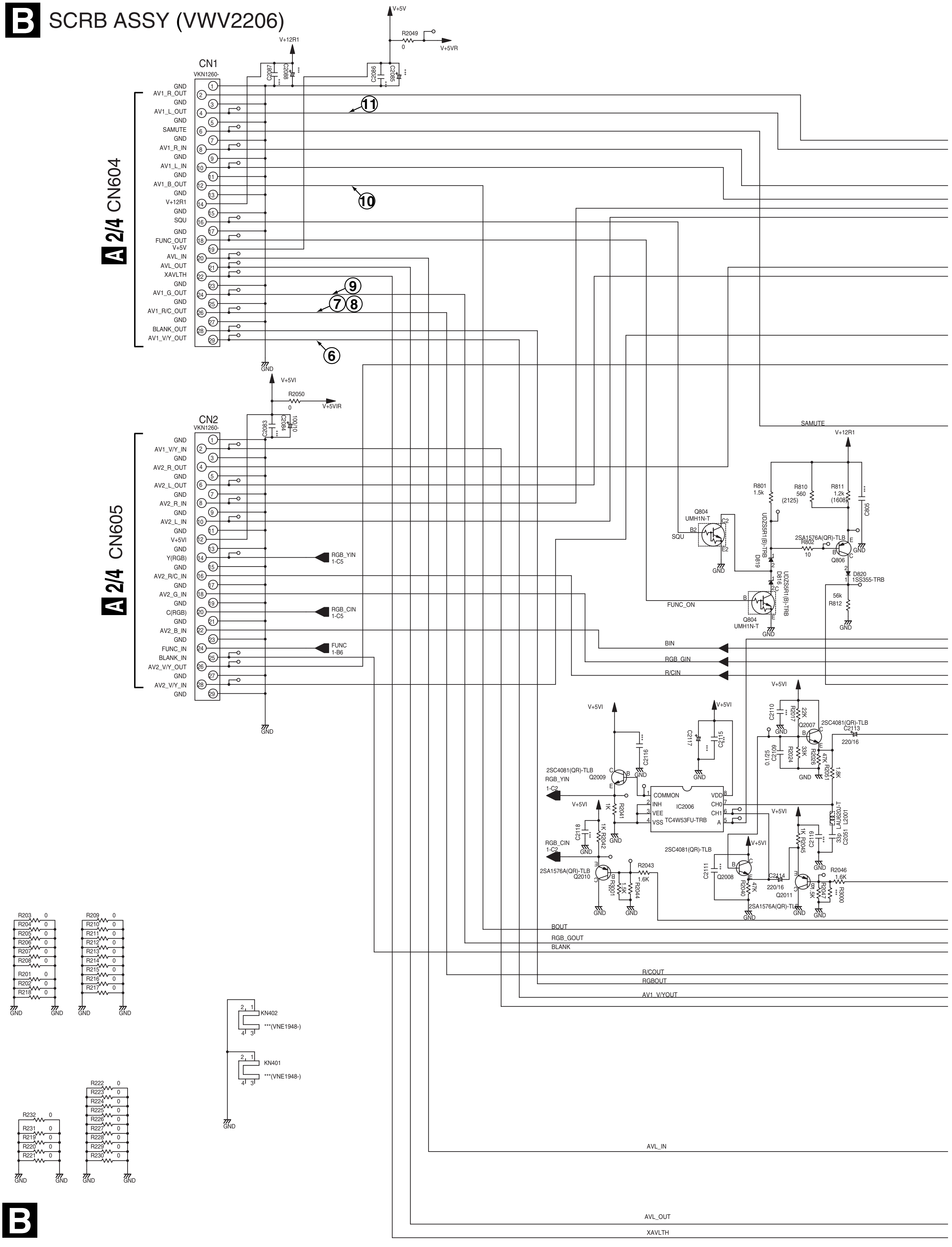

V+31V
V+5TU
R302
10(2125)
R304
10(2125)
R5012
12(2125)
R6317
0
R303
12(2125)
V+5R8E
Q6001
UMF21N-TLB
C
E
B
R6002
1K
C2
B2
E2
Q6001
UMF21N-TLB
GND
TU_CON
RFTHRU
SCL
SDA
AGC
XRST1
STACHG
A 1/4
TU_VIN
TU_RIN
TU_LIN
A 2/4
R917
1k
C923
0.01
YB
R918
3.3k
R919
3.3k
B
E
C
Q903
2SA1576A(QR)-TLB
C924
YB
3900p
C925
CH
560p
R920
1k
GND
GND
GND
C926
0.01
YB
R921
3.3k
R922
3.3k
B
E
C
Q904
2SA1576A(QR)-TLB
C927
YB
3900p
C928
CH
560p
GND
GND
GND


UMF21N
C
B2
E2
E
B
C2
C
B2
E2
E
B
C2

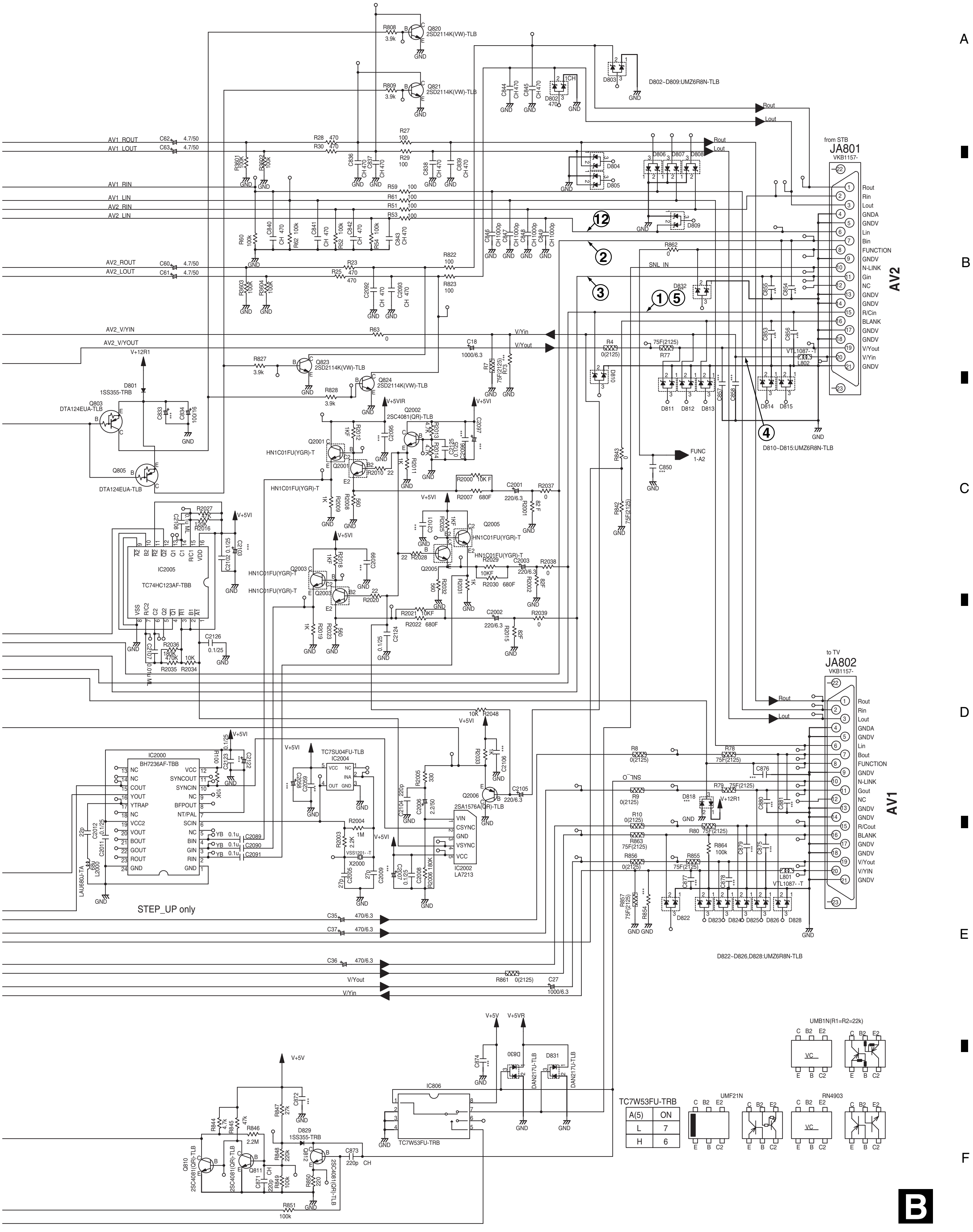
A 4/4

3.7 SCRB ASSY

B SCRB ASSY (VWV2206)


V+5V
R2049
0
V+5VR
V+12R1
C2087
C2088
C2086
C2085
CN1
VKN1260-
A 2/4 CN604
GND
AV1_R_OUT
GND
AV1_L_OUT
GND
SAMUTE
GND
AV1_R_IN
GND
AV1_L_IN
GND
AV1_B_OUT
GND
V+12R1
GND
SQU
GND
FUNC_OUT
V+5V
AVL_IN
AVL_OUT
XAVLTH
GND
AV1_G_OUT
GND
AV1_R/C_OUT
GND
BLANK_OUT
AV1_V/Y_OUT
⑪
⑩
⑨
⑦⑧
⑥
GND
V+5VI
R2050
0
V+5VIR
C2083
C2084
100/10
CN2
VKN1260-
A 2/4 CN605
GND
AV1_V/Y_IN
GND
AV2_R_OUT
GND
AV2_L_OUT
GND
AV2_R_IN
GND
AV2_L_IN
GND
V+5VI
GND
Y(RGB)
GND
AV2_R/C_IN
GND
AV2_G_IN
GND
C(RGB)
GND
AV2_B_IN
GND
FUNC_IN
BLANK_IN
AV2_V/Y_OUT
GND
AV2_V/Y_IN
GND
RGB_YIN
1-C5
RGB_CIN
1-C5
FUNC
1-B6
GND
SAMUTE
V+12R1
R801
1.5k
R810
560
(2125)
R811
1.2k
(1608)
C805
Q804
UMH1N-T
B2
C2
E2
SQU
GND
UDZS5R1(B)-TRB
D819
2SA1576A(QR)-TLB
R802
10
Q806
GND
D820
1SS355-TRB
56k
R812
GND
UDZS5R1(B)-TRB
D816
FUNC_ON
Q804
UMH1N-T
GND
BIN
RGB_GIN
R/CIN
V+5VI
C2110
R2017
22K
Q2007
2SC4081(QR)-TLB
C2113
220/16
V+5VI
V+5VI
C2117
C2115
GND
C2116
0.1/25
C2109
R2024
33K
R2026
47K
R2051
1.8K
GND
2SC4081(QR)-TLB
RGB_YIN
Q2009
1-C2
GND
COMMON
INH
VEE
VSS
IC2006
TC4W53FU-TRB
VDD
CH0
CH1
A
V+5VI
1K
R2041
V+5VI
LAU820J-T
L2001
C2118
1K R2042
GND
RGB_CIN
1-C2
1K R2045
C2119
33p C2051
2SC4081(QR)-TLB
V+5VI
2SA1576A(QR)-TLB
Q2010
R2043
1.6K
R3001
R2044
1.5K
GND
C2111
Q2008
R2040
47K
C2114
220/16
Q2011
R2047
1.5K
R2046
1.6K
R3000
GND
2SA1576A(QR)-TLB
GND
BOUT
RGB_GOUT
BLANK
R/COUT
RGBOUT
AV1_V/YOUT
R203 0
R204 0
R205 0
R206 0
R207 0
R208 0
R201 0
R202 0
R218 0
R209 0
R210 0
R211 0
R212 0
R213 0
R214 0
R215 0
R216 0
R217 0
GND
KN402
***(VNE1948-)
KN401
***(VNE1948-)
GND
R222 0
R223 0
R224 0
R225 0
R226 0
R227 0
R228 0
R229 0
R230 0
R232 0
R231 0
R219 0
R220 0
R221 0
GND
AVL_IN
AVL_OUT
XAVLTH

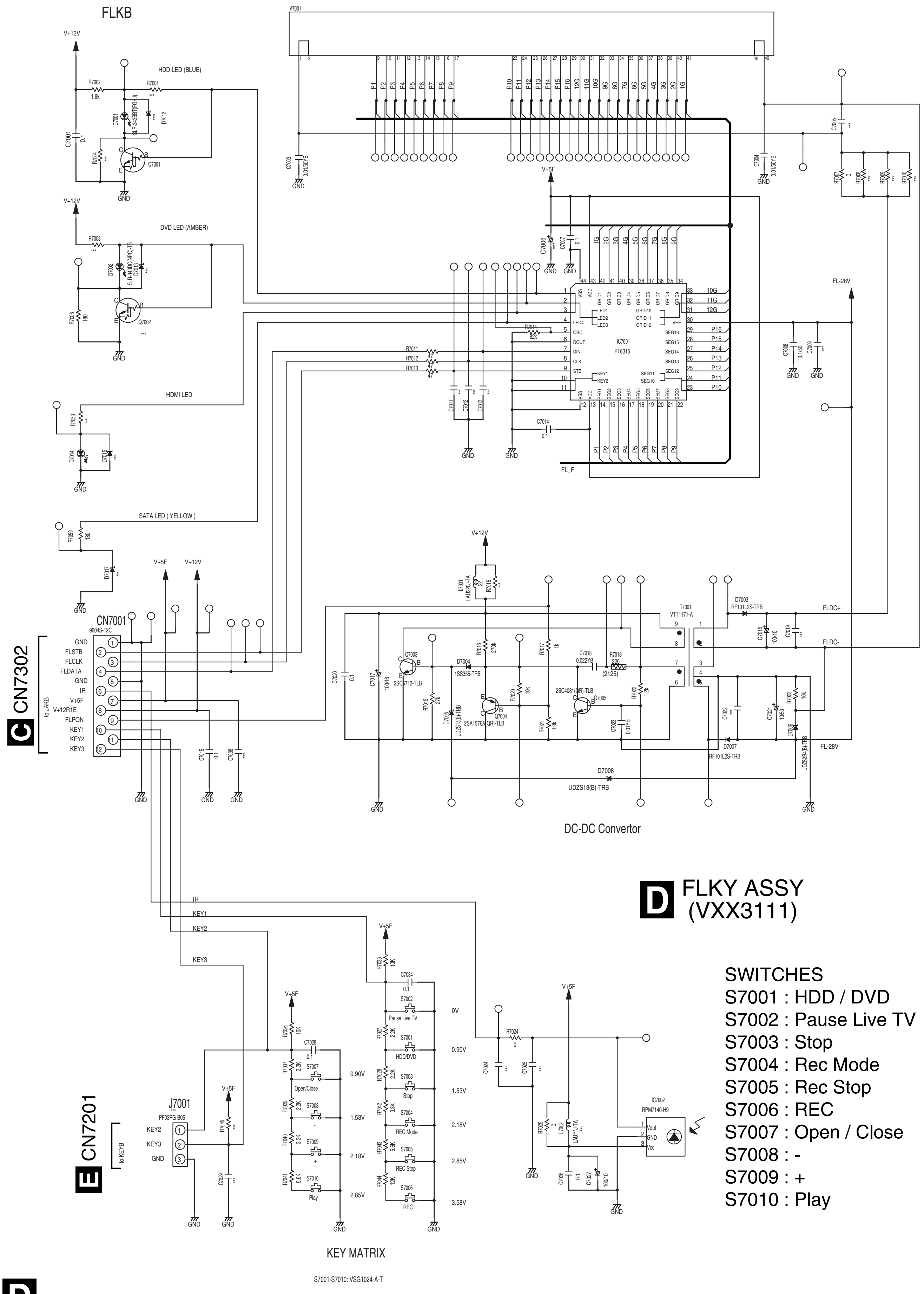
B



A
B
C
D
E
F
AV1_ROUT
AV1_LOUT
AV1_RIN
AV1_LIN
AV2_RIN
AV2_LIN
AV2_ROUT
AV2_LOUT
AV2_V/YIN
AV2_V/YOUT
Q820 2SD2114K(VW)-TLB
Q821 2SD2114K(VW)-TLB
Q823 2SD2114K(VW)-TLB
Q824 2SD2114K(VW)-TLB
Q803 DTA124EUA-TLB
Q805 DTA124EUA-TLB
D801 1SS355-TRB
V+12R1
D802~D809:UMZ6R8N-TLB
D810~D815:UMZ6R8N-TLB
D822~D826,D828:UMZ6R8N-TLB
from STB
JA801
VKB1157-
AV2
Rout
Rin
Lout
GNDA
GNDV
Lin
Bin
FUNCTION
N-LINK
Gin
NC
R/Cin
BLANK
V/Yout
V/Yin
to TV
JA802
AV1
Bout
Gout
R/Cout
V/YIN
SNL_IN
FUNC 1-A2
V/Yin
V/Yout
Q2001 HN1C01FU(YGR)-T
Q2003 HN1C01FU(YGR)-T
Q2005 HN1C01FU(YGR)-T
Q2002 2SC4081(QR)-TLB
Q2006 2SA1576A(QR)-TLB
IC2005 TC74HC123AF-TBB
IC2000 BH7236AF-TBB
IC2004 TC7SU04FU-TLB
IC2002 LA7213
X2000
STEP_UP only
V+5VI
V+5VIR
V+5V
V+5VR
IC806 TC7W53FU-TRB
D830 DAN217U-TLB
D831 DAN217U-TLB
D829 1SS355-TRB
Q810 2SC4081(QR)-TLB
Q811 2SC4081(QR)-TLB
Q812 2SC4081(QR)-TLB
UMB1N(R1=R2=22k)
UMF21N
RN4903
TC7W53FU-TRB
①
②
③
④
⑤
⑫

A(5)	ON
L	7
H	6

3.8 FJKB, FLKY and KEYB ASSYS


FLKB
V7001
HDD LED (BLUE)
DVD LED (AMBER)
HDMI LED
SATA LED (YELLOW)
IC7001
PT6315
CN7001
9604S-12C
GND
FLSTB
FLCLK
FLDATA
IR
V+5F
V+12R1E
FLPON
KEY1
KEY2
KEY3
C CN7302
to JAKB
T7001
VTT1171-A
FLDC+
FLDC-
FL-28V
FL_F
DC-DC Convertor
J7001
PF03PG-B05
E CN7201
to KEYB
IC7002
RPM7140-H9
KEY MATRIX
S7001-S7010: VSG1024-A-T
Pause Live TV
HDD/DVD
Stop
REC Mode
REC Stop
REC
Open/Close
Play
0V
0.90V
1.53V
2.18V
2.85V
3.58V

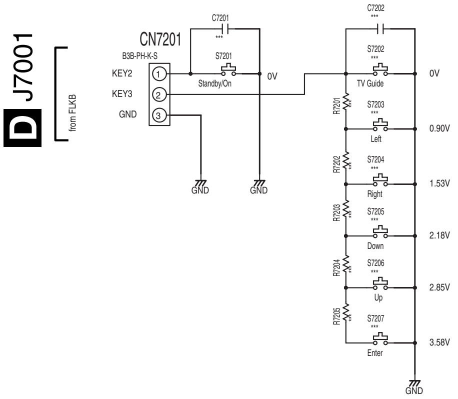
D FLKY ASSY
(VXX3111)

SWITCHES
S7001 : HDD / DVD
S7002 : Pause Live TV
S7003 : Stop
S7004 : Rec Mode
S7005 : Rec Stop
S7006 : REC
S7007 : Open / Close
S7008 : -
S7009 : +
S7010 : Play

D

E KEYB ASSY (VXX3112)

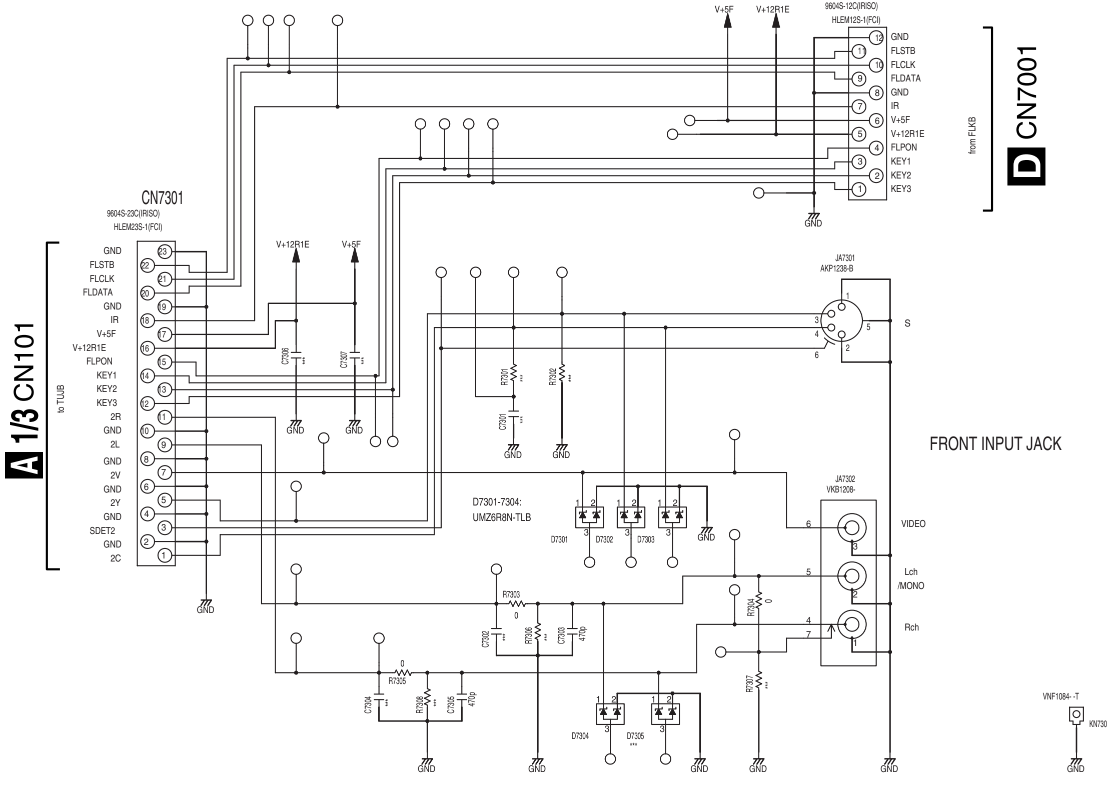
SWITCHES
S7201 : Standby / On


D J7001
from FLKB
CN7201
B3B-PH-K-S
KEY2
KEY3
GND
1
2
3
C7201
***
S7201
Standby/On
0V
GND
GND
C7202
***
S7202
***
TV Guide
0V
R7201
***
S7203
***
Left
0.90V
R7202
***
S7204
***
Right
1.53V
R7203
***
S7205
***
Down
2.18V
R7204
***
S7206
***
Up
2.85V
R7205
***
S7207
***
Enter
3.58V
GND

KEY MATRIX

S7201-S7207: VSG1024-A-T

C FJKB ASSY (VXX3113)

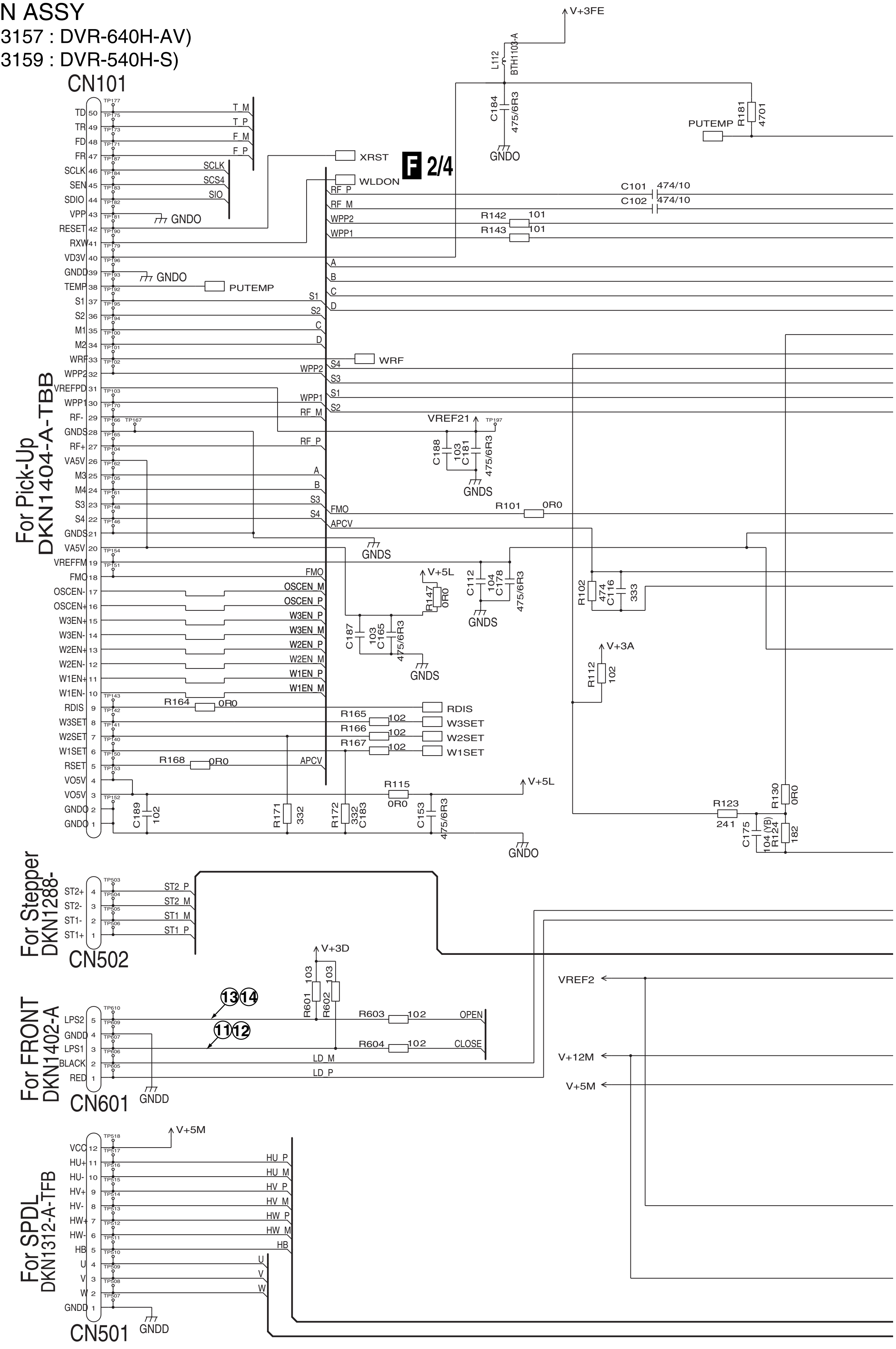

CN7302
9604S-12C(IRISO)
HLEM12S-1(FCI)
V+5F
V+12R1E
12 GND
11 FLSTB
10 FLCLK
9 FLDATA
8 GND
7 IR
6 V+5F
5 V+12R1E
4 FLPON
3 KEY1
2 KEY2
1 KEY3
GND
from FLKB
D CN7001
CN7301
9604S-23C(IRISO)
HLEM23S-1(FCI)
23 GND
22 FLSTB
21 FLCLK
20 FLDATA
19 GND
18 IR
17 V+5F
16 V+12R1E
15 FLPON
14 KEY1
13 KEY2
12 KEY3
11 2R
10 GND
9 2L
8 GND
7 2V
6 GND
5 2Y
4 GND
3 SDET2
2 GND
1 2C
to TUJB
A 1/3 CN101
GND
V+12R1E
V+5F
C7306
***
C7307
***
GND
GND
JA7301
AKP1238-B
1
2
3
4
5
6
S
R7301
***
R7302
***
C7301
***
GND
GND
D7301-7304:
UMZ6R8N-TLB
D7301
D7302
D7303
GND
JA7302
VKB1208-
6
VIDEO
3
5
Lch
/MONO
2
4
7
Rch
1
R7303
0
C7302
***
R7306
***
C7303
470p
R7304
0
R7307
***
R7305
0
C7304
***
R7308
***
C7305
470p
D7304
D7305
***
VNF1084- -T
KN7301
GND

FRONT INPUT JACK

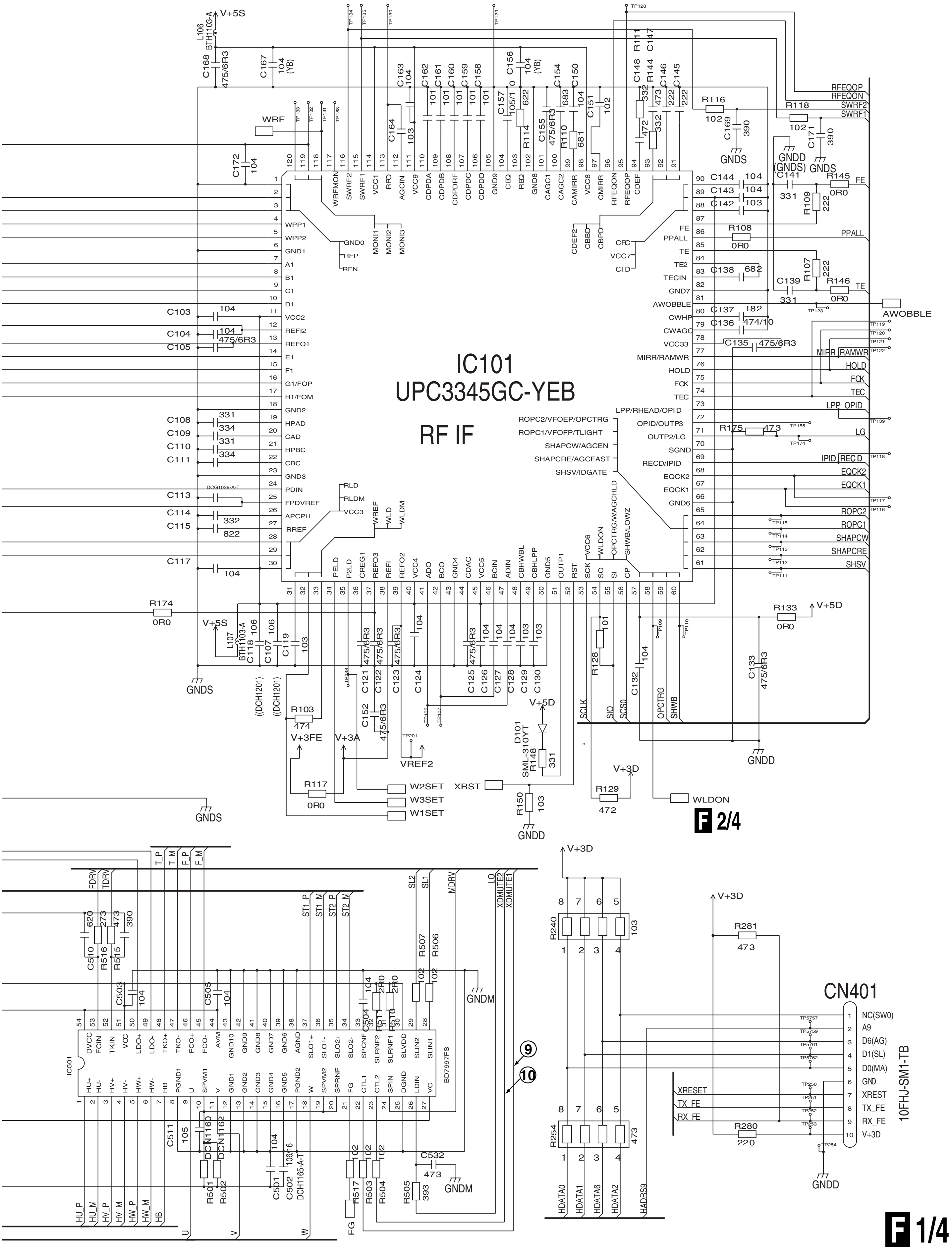
C E

3.9 MAIN ASSY(1/4)

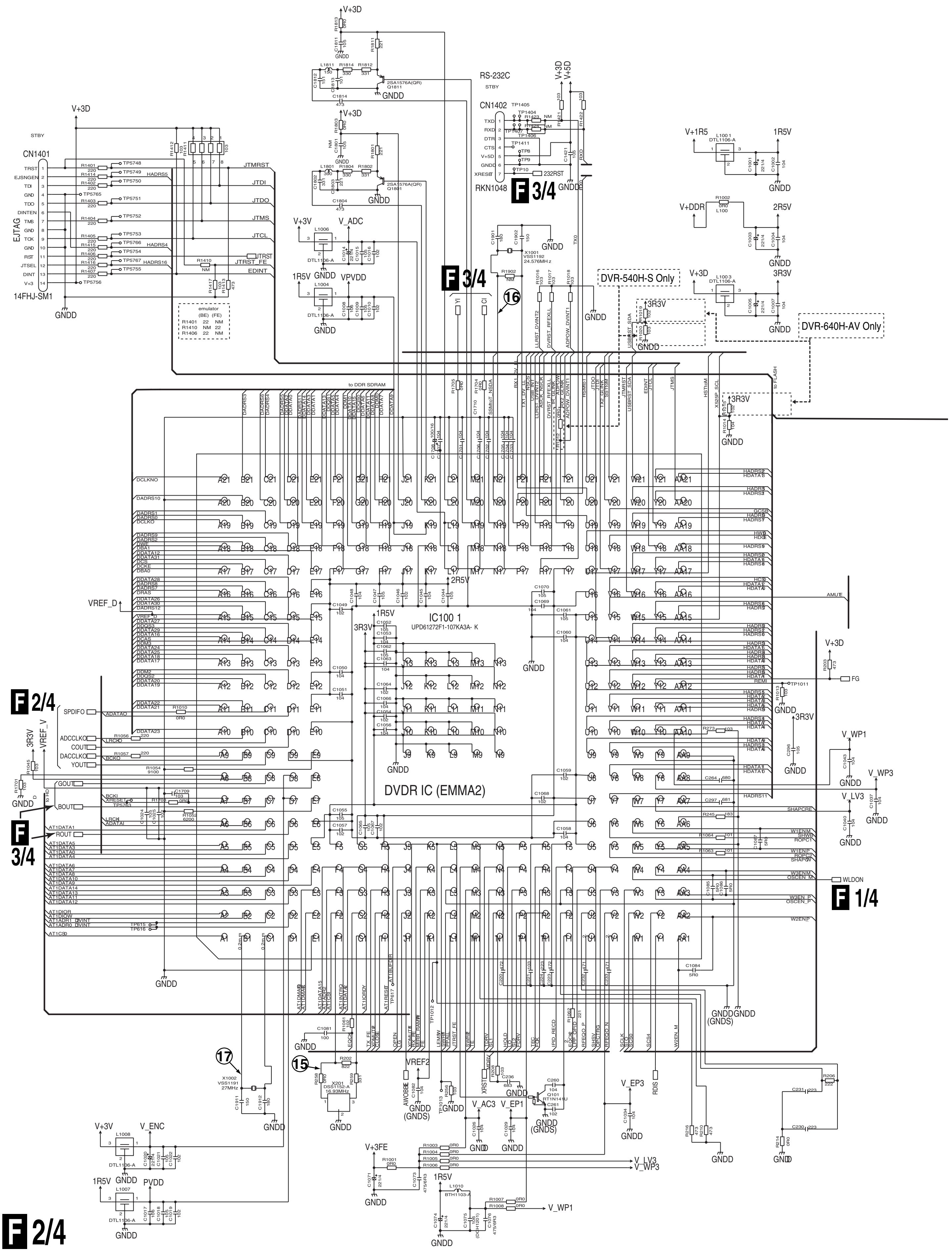
F 1/4 MAIN ASSY
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)


CN101
For Pick-Up
DKN1404-A-TBB
TD 50
TR 49
FD 48
FR 47
SCLK 46
SEN 45
SDIO 44
VPP 43
RESET 42
RXW 41
VD3V 40
GNDD 39
TEMP 38
S1 37
S2 36
M1 35
M2 34
WRF 33
WPP2 32
VREFPD 31
WPP1 30
RF- 29
GNDS 28
RF+ 27
VA5V 26
M3 25
M4 24
S3 23
S4 22
GNDS 21
VA5V 20
VREFFM 19
FMO 18
OSCEN- 17
OSCEN+ 16
W3EN+ 15
W3EN- 14
W2EN+ 13
W2EN- 12
W1EN+ 11
W1EN- 10
RDIS 9
W3SET 8
W2SET 7
W1SET 6
RSET 5
VO5V 4
VO5V 3
GNDO 2
GNDO 1
T_M
T_P
F_M
F_P
SCLK
SCS4
SIO
GNDO
PUTEMP
XRST
WLDON
F 2/4
RF_P
RF_M
WPP2
WPP1
A
B
C
D
S1
S2
S4
S3
WRF
VREF21
C188 103
C181 475/6R3
GNDS
FMO
APCV
R101 0R0
OSCEN_M
OSCEN_P
W3EN_P
W3EN_M
W2EN_P
W2EN_M
W1EN_P
W1EN_M
V+5L
R147 0R0
C112 104
C178 475/6R3
C187 103
C165 475/6R3
R164 0R0
R165 102
R166 102
R167 102
R168 0R0
RDIS
W3SET
W2SET
W1SET
R115 0R0
V+5L
C189 102
R171 332
R172 332
C183
C153 475/6R3
GNDO
V+3FE
L112
BTH1103-A
C184 475/6R3
GNDO
PUTEMP
R181 4701
C101 474/10
C102 474/10
R142 101
R143 101
R102 474
C116 333
V+3A
R112 102
R123 241
R130 0R0
C175 104 (YB)
R124 182
CN502
For Stepper
DKN1288-
ST2+ 4
ST2- 3
ST1- 2
ST1+ 1
ST2_P
ST2_M
ST1_M
ST1_P
V+3D
R601 103
R602 103
R603 102
R604 102
OPEN
CLOSE
⑬⑭
⑪⑫
VREF2
V+12M
V+5M
CN601
For FRONT
DKN1402-A
LPS2 5
GNDD 4
LPS1 3
BLACK 2
RED 1
LD_M
LD_P
GNDD
CN501
For SPDL
DKN1312-A-TFB
V+5M
VCC 12
HU+ 11
HU- 10
HV+ 9
HV- 8
HW+ 7
HW- 6
HB 5
U 4
V 3
W 2
GNDD 1
HU_P
HU_M
HV_P
HV_M
HW_P
HW_M
HB
U
V
W
GNDD

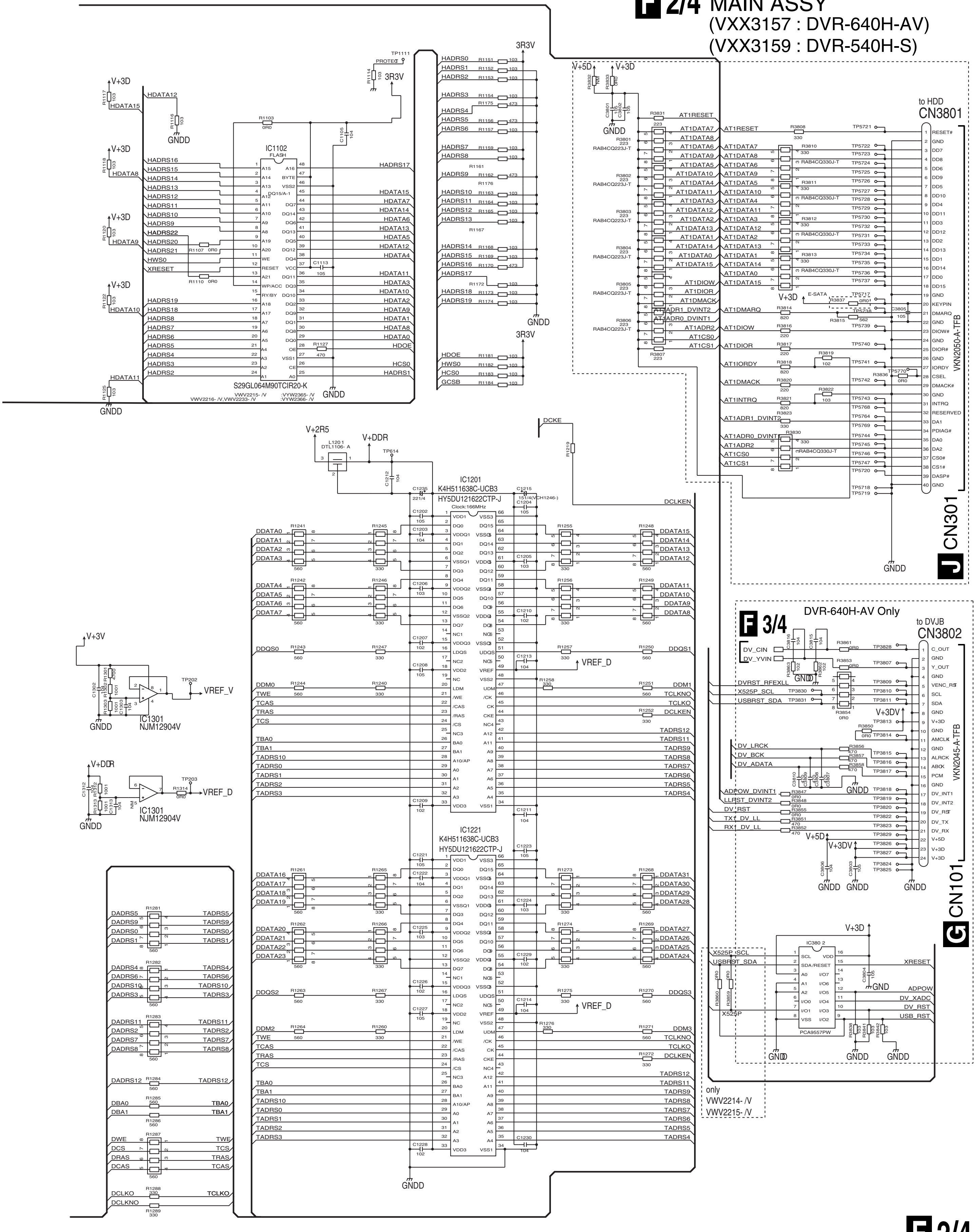
F 1/4


IC101
UPC3345GC-YEB
RF IF
V+5S
L106 BTH1103-A
C168 475/6R3
C167 104 (YB)
C163 104
C162 101
C161 101
C160 101
C159 101
C158 101
C156 104 (YB)
C157 105/10
R114 622
C155 475/6R3
C154 683
C150 104
R110 681
C151 102
C148 332
R111
C147
R144 332
C146 222
C145 222
C164 103
472
R116 102
C169 390
R118 102
C171 390
GNDS
GNDD (GNDS)
RFEQOP
RFEQON
SWRF2
SWRF1
WRF
C172 104
C144 104
C143 104
C142 103
C141 331
R145 0R0
FE
R109 222
R108 0R0
PPALL
R107 222
C138 682
C139 331
R146 0R0
TE
C137 182
C136 474/10
AWOBBLE
C135 475/6R3
MIRR RAMWR
HOLD
FCK
TEC
LPP OPID
R175 473
LG
IPID RECD
EQCK2
EQCK1
ROPC2
ROPC1
SHAPCW
SHAPCRE
SHSV
C103 104
C104 104
C105 475/6R3
C108 331
C109 334
C110 331
C111 334
C113
DCG1029-A-T
C114 332
C115 822
C117 104
R174 0R0
V+5S
L107 BTH1103-A
C118 106
C107 106
C119
103
C121 475/6R3
C122 475/6R3
C123 475/6R3
C124 104
C125 475/6R3
C126 104
C127 104
C128 103
C129 103
C130
(DCH1201)
R103 474
C152 475/6R3
V+3FE
V+3A
VREF2
R117 0R0
W2SET
W3SET
W1SET
XRST
V+5D
D101 SML-310YT
R148 331
R150 103
GNDD
R128 101
C132 104
R129 472
V+3D
SCLK
SIO
SCS0
OPCTRG
SHWB
WLDON
C133 475/6R3
R133 0R0
V+5D
GNDD
F 2/4
WPP1 WPP2 GND1 A1 B1 C1 D1 VCC2 REFI2 REFO1 E1 F1 G1/FOP H1/FOM GND2 HPAD CAD HPBC CBC GND3 PDIN FPDVREF APCPH RREF
GND0 RFP RFN MONI1 MONI2 MONI3
RLD RLDM VCC3 WREF WLD WLDM
WRFMON SWRF2 SWRF1 VCC1 RFO AGCIN VCC9 CDPDA CDPDB CDPDRF CDPDC CDPDD GND9 CEQ REQ GND8 CAGC1 CAGC2 CAMIRR VCC8 CMIRR RFEQON RFEQOP CDEF
CDEF2 CBBD CBPD CRC VCC7 CID
FE PPALL TE TE2 TECIN GND7 AWOBBLE CWHP CWAGC VCC33 MIRR/RAMWR HOLD FCK TEC LPP/RHEAD/OPID OPID/OUTP3 OUTP2/LG SGND RECD/IPID EQCK2 EQCK1 GND6
ROPC2/VFOEP/OPCTRG ROPC1/VFOFP/TLIGHT SHAPCW/AGCEN SHAPCRE/AGCFAST SHSV/IDGATE
PELD P2LD CREG1 REFO3 REFI REFO2 VCC4 ADO BCO GND4 CDAC VCC5 BCIN ADIN CBHWBL CBHLPP GND5 OUTP1 RST SCK SO SI CP VCC6 WLDON OPCTRG/WAGCHLD SHWB/LOWZ
T_P T_M F_P F_M
FDRV TDRV
SL2 SL1 MDRV LO XDMUTE2 XDMUTE1
ST1_P ST1_M ST2_P ST2_M
C510 620
R516 273
R515 473
390
C503 104
C505 104
C504 104
R511 2R0
R510 2R0
R507 102
R506 102
GNDM
IC501
BD7997FS
DVCC FCIN TKIN VCC LDO+ LDO- TKO+ TKO- FCO+ FCO- AVM GND10 GND9 GND8 GND7 GND6 AGND SLO1+ SLO1- SLO2+ SLO2- SPCNF SLRNF2 SLRNF1 SLVDD SLIN2 SLIN1
HU+ HU- HV+ HV- HW+ HW- HB PGND1 U SPVM1 V GND1 GND2 GND3 GND4 GND5 PGND2 W SPVM2 SPRNF FG CTL1 CTL2 SPIN DGND LDIN VC
⑨
⑩
C511 105
DCN1160
DCN1162
R501 R502
104
C501 C502 106/16
DCH1165-A-T
102 102 102
R517 R503 R504
FG
C532 473
R505 393
GNDM
HU_P HU_M HV_P HV_M HW_P HW_M HB
U V W
V+3D
R240 103
R254 473
8 7 6 5
1 2 3 4
HDATA0 HDATA1 HDATA6 HDATA2 HADRS9
R281 473
R280 220
CN401
10FHJ-SM1-TB
1 NC(SW0)
2 A9
3 D6(AG)
4 D1(SL)
5 D0(MA)
6 GND
7 XREST
8 TX_FE
9 RX_FE
10 V+3D
XRESET
TX_FE
RX_FE
TP5757 TP5759 TP5761 TP5762 TP250 TP251 TP252 TP253 TP254
GNDD
F 1/4

3.10 MAIN ASSY(2/4)

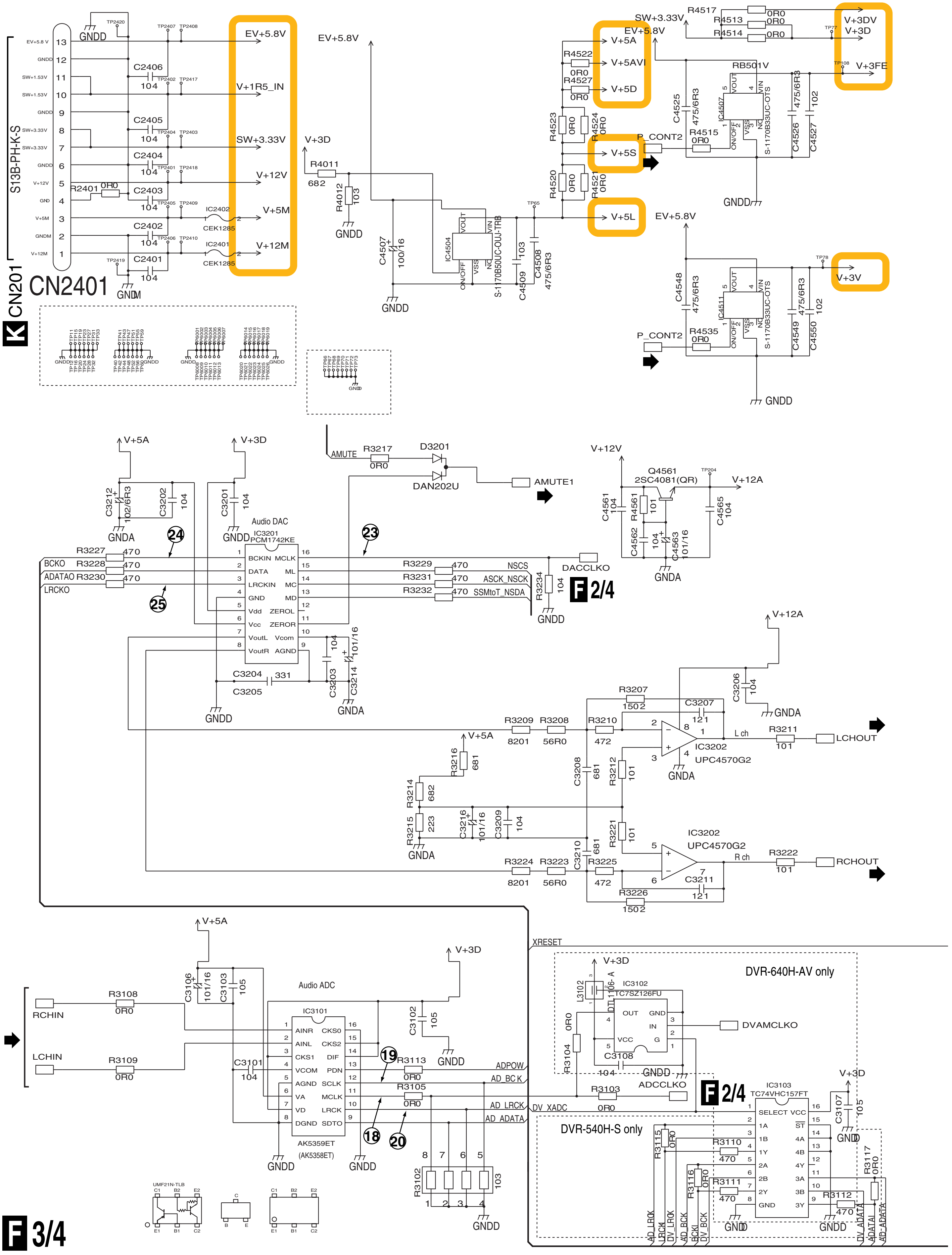

A
B
C
D
E
F
V+3D
STBY
CN1401
14FHJ-SM1
EJTAG
TRST
EJSNGEN
TDI
GND
TDO
DINTEN
TMS
TCK
RST
JTSEL
DINT
V+3
JTMRST
JTDI
JTDO
JTMS
JTCL
JTRST
JTRST_FE
EDINT
HADRS5
HADRS4
HADRS16
emulator
(BE) (FE)
R1401 22 NM
R1410 NM 22
R1406 22 NM
GNDD
2SA1576A(QR)
Q1811
Q1801
RS-232C
STBY
CN1402
RKN1048
TXD
RXD
DTR
CTS
V+5D
GNDD
XRESET
232RST
V+3D
V+5D
F 3/4
V+1R5
1R5V
L1001
DTL1106-A
V+DDR
2R5V
L1002
V+3D
3R3V
L1003
V+3V
V_ADC
L1006
DTL1106-A
1R5V
VPVDD
L1004
X1001
VSS1192
24.576MHz
DVR-540H-S Only
DVR-640H-AV Only
16
to DDR SDRAM
to FLASH
IC100 1
UPD61272F1-107KA3A- K
DVDR IC (EMMA2)
VREF_D
2R5V
1R5V
3R3V
V+3D
FG
TP1011
V_WP1
V_WP3
V_LV3
WLDON
F 1/4
F 2/4
SPDIFO
ADCCLKO
COUT
DACCLKO
YOUT
GOUT
BOUT
ROUT
3R3V
VREF_V
F 3/4
AT1DATA1
AT1C30
GNDD
(GNDS)
17
X1002
VSS1191
27MHz
15
X201
DSS1132-A
16.93MHz
VREF2
AWOBE
Q101
RT1N141U
V_AC3
V_EP1
V_EP3
RDIS
V+3V
V_ENC
L1008
DTL1106-A
1R5V
PVDD
L1007
V+3FE
V_LV3
V_WP3
1R5V
L1010
BTH1103-A
V_WP1
F 2/4

F 2/4 MAIN ASSY
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)

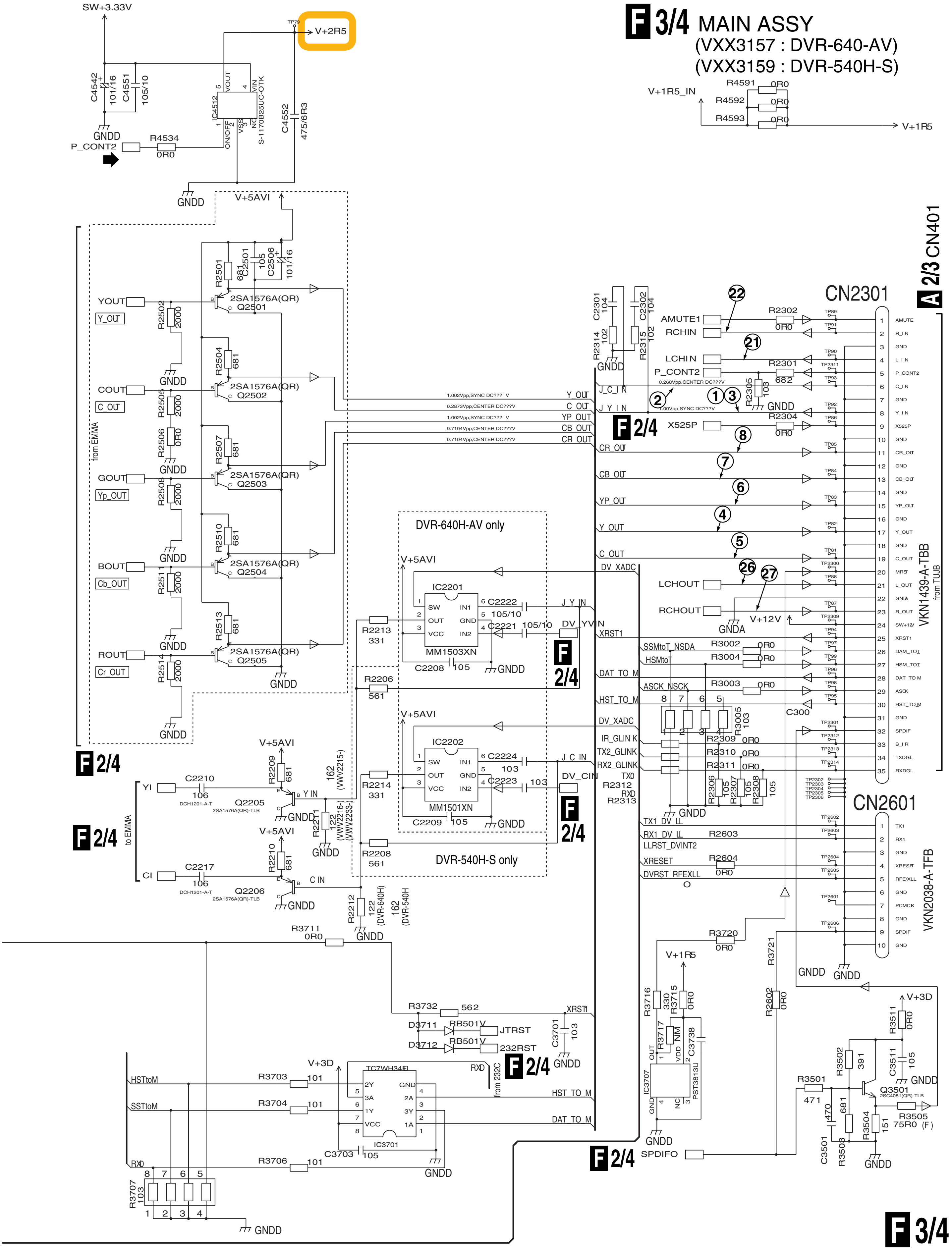

IC1102
FLASH
S29GL064M90TCIR20-K
VWV2215- /V :VYW2365- /V
VWV2216- /V,VWV2233- /V :VYW2366- /V
V+3D
3R3V
GNDD
TP1111
PROTECT
HADRS0 – HADRS22
HDATA0 – HDATA15
HWS0
XRESET
HDOE
HCS0
GCSB
DCKE
DCLKEN
V+2R5
V+DDR
L1201
DTL1106- A
TP614
IC1201
K4H511638C-UCB3
HY5DU121622CTP-J
Clock:166MHz
IC1221
K4H511638C-UCB3
HY5DU121622CTP-J
DDATA0 – DDATA31
DDQS0
DDQS1
DDQS2
DDQS3
DDM0
DDM1
DDM2
DDM3
TWE
TCAS
TRAS
TCS
TBA0
TBA1
TCLKNO
TCLKO
TADRS0 – TADRS12
DADRS0 – DADRS12
DBA0
DBA1
DWE
DCS
DRAS
DCAS
DCLKO
DCLKNO
V+3V
IC1301
NJM12904V
VREF_V
VREF_D
TP202
TP203
V+5D
AT1RESET
AT1DATA0 – AT1DATA15
AT1DIOW
AT1DIOR
AT1DMACK
AT1DMARQ
AT1IORDY
AT1INTRQ
AT1ADR0_DVINT1
AT1ADR1_DVINT2
AT1ADR2
AT1CS0
AT1CS1
RAB4CQ223J-T
RAB4CQ330J-T
E-SATA
to HDD
CN3801
VKN2050-A-TFB
1 RESET#
2 GND
3 DD7
4 DD8
5 DD6
6 DD9
7 DD5
8 DD10
9 DD4
10 DD11
11 DD3
12 DD12
13 DD2
14 DD13
15 DD1
16 DD14
17 DD0
18 DD15
19 GND
20 KEYPIN
21 DMARQ
22 GND
23 DIOW#
24 GND
25 DIOR#
26 GND
27 IORDY
28 CSEL
29 DMACK#
30 GND
31 INTRQ
32 RESERVED
33 DA1
34 PDIAG#
35 DA0
36 DA2
37 CS0#
38 CS1#
39 DASP#
40 GND
J CN301
F 3/4
DVR-640H-AV Only
to DVJB
CN3802
VKN2045-A-TFB
1 C_OUT
2 GND
3 Y_OUT
4 GND
5 VENC_RST
6 SCL
7 SDA
8 GND
9 V+3D
10 GND
11 AMCLK
12 GND
13 ALRCK
14 ABCK
15 PCM
16 GND
17 DV_INT1
18 DV_INT2
19 DV_RST
20 DV_TX
21 DV_RX
22 V+5D
23 V+3D
24 V+3D
G CN101
DV_CIN
DV_YVIN
DVRST_RFEXLL
X525P_SCL
USBRST_SDA
DV_LRCK
DV_BCK
DV_ADATA
ADPOW_DVINT1
LLRST_DVINT2
DV_RST
TX1_DV_LL
RX1_DV_LL
V+3DV
IC3802
PCA9557PW
XRESET
ADPOW
DV_XADC
DV_RST
USB_RST
X525P
only
VWV2214- /V
VWV2215- /V

F 2/4

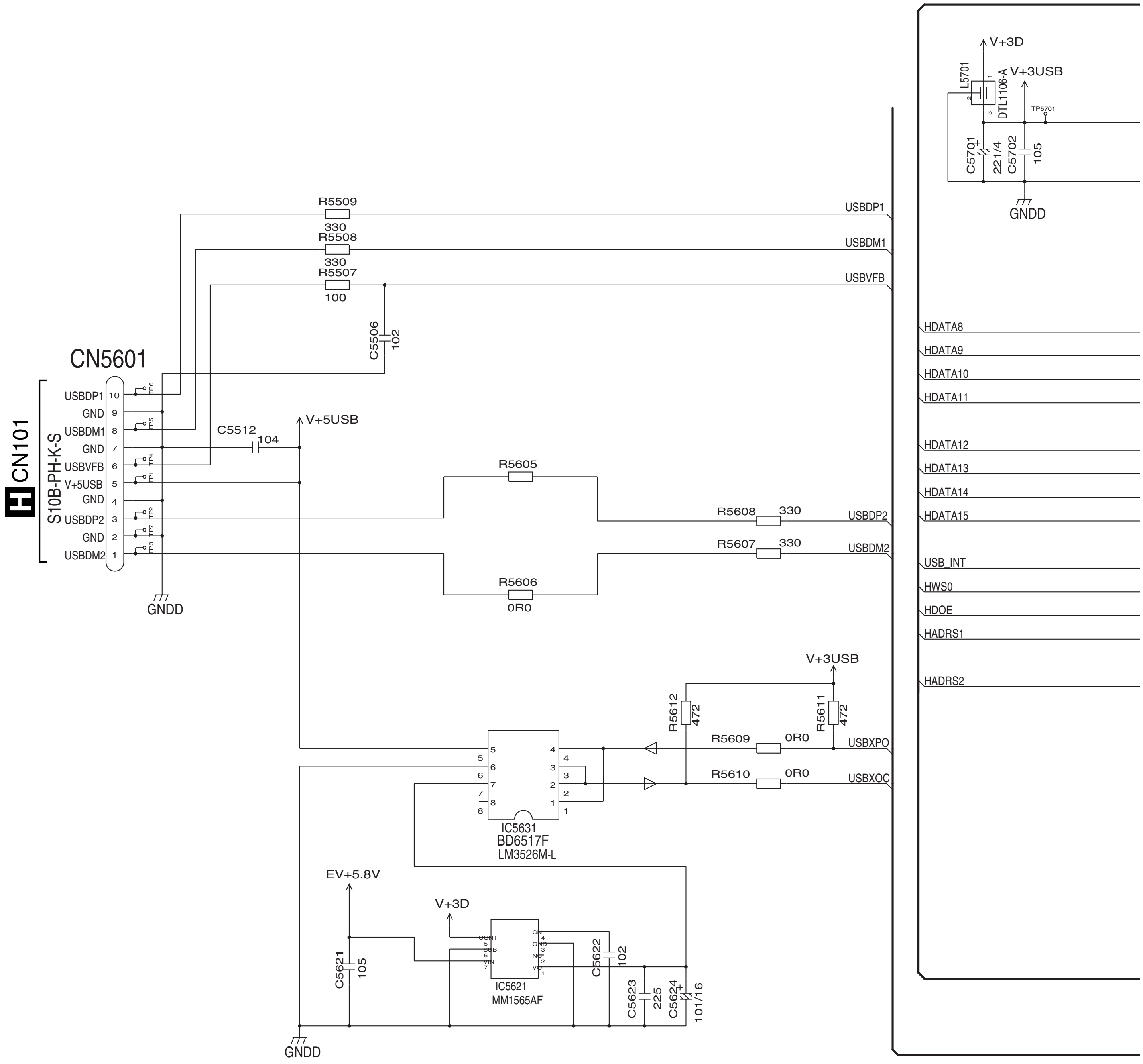
3.11 MAIN ASSY(3/4)


A
B
C
D
E
F
S13B-PH-K-S
CN201
CN2401
K
EV+5.8 V
GNDD
SW+1.53V
SW+3.33V
V+12V
GND
V+5M
GNDM
V+12M
TP2420
TP2407
TP2408
TP2402
TP2417
TP2404
TP2403
TP2401
TP2418
TP2405
TP2409
TP2406
TP2410
TP2419
C2406 104
C2405 104
C2404 104
C2403 104
C2402 104
C2401 104
R2401 0R0
IC2402 CEK1285
IC2401 CEK1285
EV+5.8V
V+1R5_IN
SW+3.33V
V+12V
V+5M
V+12M
GNDM
V+3D
R4011 682
R4012 103
GNDD
C4507 100/16
IC4504 S-1170B50UC-OUJ-TRB
VOUT VIN ON/OFF VSS NC
C4509 103
C4508 475/6R3
TP65
R4523 0R0
R4524 0R0
R4520 0R0
R4521 0R0
R4522 0R0
R4527 0R0
V+5A
V+5AVI
V+5D
V+5S
V+5L
P_CONT2
SW+3.33V
EV+5.8V
R4517
R4513
R4514
0R0
V+3DV
V+3D
TP77
TP108
V+3FE
RB501V
C4525 475/6R3
IC4507 S-1170B33UC-OTS
R4515 0R0
C4526 475/6R3
C4527 102
GNDD
TP78
V+3V
C4548 475/6R3
IC4511 S-1170B33UC-OTS
R4535 0R0
C4549 475/6R3
C4550 102
GNDD
V+5A
V+3D
C3212 102/6R3
C3202 104
C3201 104
GNDA
GNDD
Audio DAC
IC3201 PCM1742KE
BCKIN MCLK
DATA ML
LRCKIN MC
GND MD
Vdd ZEROL
Vcc ZEROR
VoutL Vcom
VoutR AGND
24
23
25
R3227 470
R3228 470
R3230 470
BCKO
ADATAO
LRCKO
AMUTE
R3217 0R0
D3201 DAN202U
AMUTE1
R3229 470 NSCS
R3231 470 ASCK_NSCK
R3232 470 SSMtoT_NSDA
R3234 104
DACCLKO
2/4
C3204 331
C3205
C3203 104
C3214 101/16
V+12V
Q4561 2SC4081(QR)
TP204
V+12A
C4561 104
R4561 101
C4562 104
C4563 101/16
C4565 104
GNDA
V+12A
C3206 104
R3207 1502
C3207 121
R3209 8201
R3208 56R0
R3210 472
IC3202 UPC4570G2
L ch
R3211 101
LCHOUT
V+5A
R3216 681
C3208 681
R3212 101
R3214 682
R3215 223
C3216 101/16
C3209 104
C3210 681
R3221 101
IC3202 UPC4570G2
R ch
R3222 101
RCHOUT
R3224 8201
R3223 56R0
R3225 472
C3211 121
R3226 1502
V+5A
V+3D
C3106 101/16
C3103 105
Audio ADC
IC3101 AK5359ET (AK5358ET)
AINR CKS0
AINL CKS2
CKS1 DIF
VCOM PDN
AGND SCLK
VA MCLK
VD LRCK
DGND SDTO
C3102 105
C3101 104
RCHIN
R3108 0R0
LCHIN
R3109 0R0
19
R3113 0R0
R3105 0R0
18
20
ADPOW
AD_BCK
AD_LRCK
AD_ADATA
R3102 103
XRESET
DVR-640H-AV only
V+3D
L3102 DTL1106-A
IC3102 TC7SZ126FU
OUT GND IN VCC G
C3108 104
R3104 0R0
DVAMCLKO
ADCCLKO
R3103 0R0
DV_XADC
2/4
IC3103 TC74VHC157FT
SELECT VCC
1A ST
1B 4A
1Y 4B
2A 4Y
2B 3A
2Y 3B
GND 3Y
C3107 105
DVR-540H-S only
R3115 0R0
R3110 470
R3116 0R0
R3111 470
R3112 470
R3117 0R0
AD_LRCK
LRCK
DV_LRCK
AD_BCK
BCKI
DV_BCK
DV_ADATA
ADATA
AD_ADATA
UMF21N-TLB
C1 B2 E2 E1 B1 C2
C B E
3/4
F

F 3/4 MAIN ASSY
(VXX3157 : DVR-640-AV)
(VXX3159 : DVR-540H-S)


SW+3.33V
TP79
V+2R5
C4542
101/16
C4551
105/10
IC4512
VOUT
VIN
ON/OFF
VSS
NC
S-1170B25UC-OTK
C4552
475/6R3
GNDD
P_CONT2
R4534
0R0
V+5AVI
R4591
R4592
R4593
0R0
V+1R5_IN
V+1R5
YOUT
Y_OUT
COUT
C_OUT
GOUT
Yp_OUT
BOUT
Cb_OUT
ROUT
Cr_OUT
from EMMA
R2501
681
C2501
105
C2506
101/16
R2502
2000
2SA1576A(QR)
Q2501
R2504
681
Q2502
R2505
2000
R2506
0R0
R2507
681
Q2503
R2508
2000
R2510
681
Q2504
R2511
2000
R2513
681
Q2505
R2514
2000
GNDD
F 2/4
1.002Vpp,SYNC DC??? V
0.2873Vpp,CENTER DC???V
1.002Vpp,SYNC DC??? V
0.7104Vpp,CENTER DC???V
0.7104Vpp,CENTER DC???V
Y_OUT
C_OUT
YP_OUT
CB_OUT
CR_OUT
J_C_I N
J_Y_I N
C2301
104
C2302
104
R2314
102
R2315
102
AMUTE1
RCHIN
LCHIN
P_CONT2
X525P
R2302
0R0
R2301
682
R2305
103
R2304
0R0
0.268Vpp,CENTER DC???V
1.00Vpp,SYNC DC???V
CR_OUT
CB_OUT
YP_OUT
Y_OUT
C_OUT
DV_XADC
LCHOUT
RCHOUT
GNDA
V+12V
XRST1
SSMtoT_NSDA
HSMtoT
DAT_TO_M
ASCK_NSCK
HST_TO_M
R3002
R3004
R3003
0R0
R3005
103
C300
DV_XADC
IR_GLIN K
TX2_GLINK
RX2_GLINK
TX0
R2312
RXD
R2313
R2309
R2310
R2311
0R0
R2306
105
R2307
105
R2308
105
GNDD
CN2301
A 2/3 CN401
VKN1439-A-TBB
from TUJB
1 AMUTE
2 R_I N
3 GND
4 L_I N
5 P_CONT2
6 C_I N
7 GND
8 Y_I N
9 X525P
10 GND
11 CR_OUT
12 GND
13 CB_OUT
14 GND
15 YP_OUT
16 GND
17 Y_OUT
18 GND
19 C_OUT
20 MRST
21 L_OUT
22 GNDA
23 R_OUT
24 SW+12V
25 XRST1
26 DAM_TOT
27 HSM_TOT
28 DAT_TO_M
29 ASCK
30 HST_TO_M
31 GND
32 SPDIF
33 B_I R
34 TXDGL
35 RXDGL
TP89 TP91 TP90 TP2311 TP93 TP92 TP86 TP85 TP84 TP83 TP82 TP81 TP2300 TP88 TP87 TP2309 TP94 TP97 TP99 TP96 TP98 TP95 TP2301 TP2312 TP2313 TP2314 TP2302 TP2303 TP2304 TP2305 TP2306
22 21 2 1 3 8 7 6 4 5 26 27
DVR-640H-AV only
V+5AVI
IC2201
SW
IN1
OUT
GND
VCC
IN2
MM1503XN
C2222
105/10
C2221
105/10
C2208
105
J_Y_IN
DV_YVIN
R2213
331
R2206
561
IC2202
MM1501XN
C2224
103
C2223
103
C2209
105
J_C_IN
DV_CIN
R2214
331
R2208
561
DVR-540H-S only
F 2/4
YI
C2210
106
DCH1201-A-T
Q2205
2SA1576A(QR)-TLB
R2209
681
Y IN
162
(VWV2215-)
R2211
122
(VWV2216-)
(VWV2233-)
CI
C2217
106
DCH1201-A-T
Q2206
2SA1576A(QR)-TLB
R2210
681
C IN
R2212
122
(DVR-640H)
162
(DVR-540H)
to EMMA
TX1_DV_LL
RX1_DV_LL
LLRST_DVINT2
XRESET
DVRST_RFEXLL
R2603
R2604
0R0
CN2601
VKN2038-A-TFB
1 TX1
2 RX1
3 GND
4 XRESET
5 RFE/XLL
6 GND
7 PCMCK
8 GND
9 SPDIF
10 GND
TP2602 TP2603 TP2604 TP2605 TP2601 TP2606
R3711
0R0
R3720
0R0
R3721
V+1R5
R3716
330
R3715
0R0
R3717
NM
C3738
IC3707
PST3813U
VDD
OUT
GND
NC
R2602
0R0
GNDD
R3732
562
XRSTI
D3711
RB501V
JTRST
D3712
RB501V
232RST
C3701
103
RXD
232C
from 232C
F 2/4
HSTtoM
SSTtoM
RXD
R3703
101
R3704
101
R3706
101
V+3D
TC7WH34FU
2Y
3A
1Y
VCC
GND
2A
3Y
1A
IC3701
C3703
105
HST_TO_M
DAT_TO_M
R3707
103
GNDD
F 2/4
SPDIFO
V+3D
R3511
0R0
R3502
391
C3511
105
R3501
471
Q3501
2SC4081(QR)-TLB
C3501
470
R3503
681
R3504
151
R3505
75R0 (F)

3.12 MAIN ASSY(4/4)



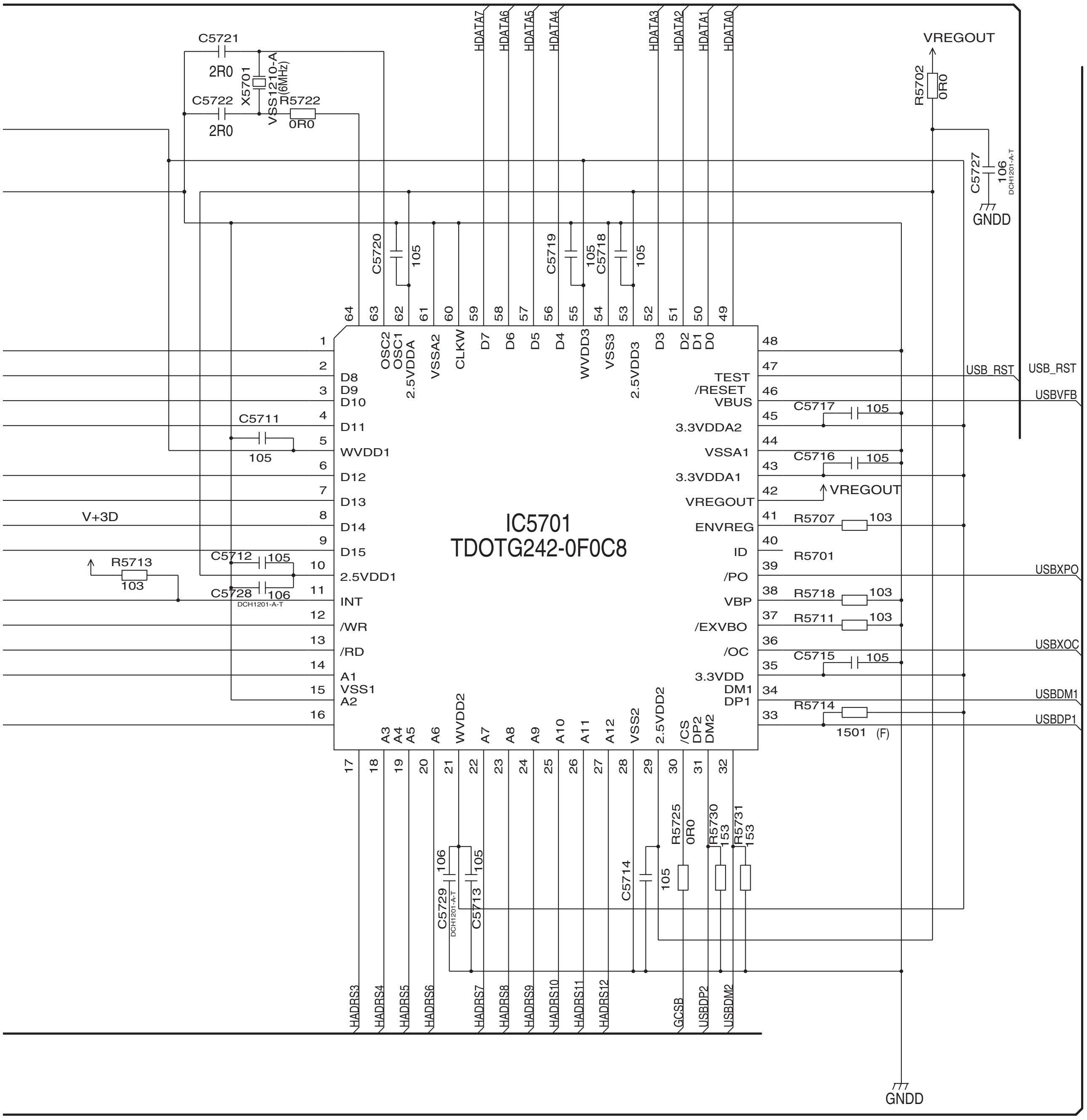
H
CN101
S10B-PH-K-S
CN5601
USBDP1 10
GND 9
USBDM1 8
GND 7
USBVFB 6
V+5USB 5
GND 4
USBDP2 3
GND 2
USBDM2 1
TP6
TP5
TP4
TP1
TP2
TP7
TP3
GNDD
R5509
330
R5508
330
R5507
100
C5506
102
C5512
104
V+5USB
R5605
R5606
0R0
R5608
330
R5607
330
USBDP1
USBDM1
USBVFB
USBDP2
USBDM2
V+3USB
R5612
472
R5611
472
R5609
0R0
R5610
0R0
USBXPO
USBXOC
IC5631
BD6517F
LM3526M-L
EV+5.8V
V+3D
C5621
105
IC5621
MM1565AF
CONT
SUB
VIN
CN
GND
NC
VO
C5622
102
C5623
225
C5624
101/16
GNDD
V+3D
V+3USB
L5701
DTL1106-A
TP5701
C5701
221/4
C5702
105
GNDD
HDATA8
HDATA9
HDATA10
HDATA11
HDATA12
HDATA13
HDATA14
HDATA15
USB_INT
HWS0
HDOE
HADRS1
HADRS2

F 4/4

F 4/4 MAIN ASSY

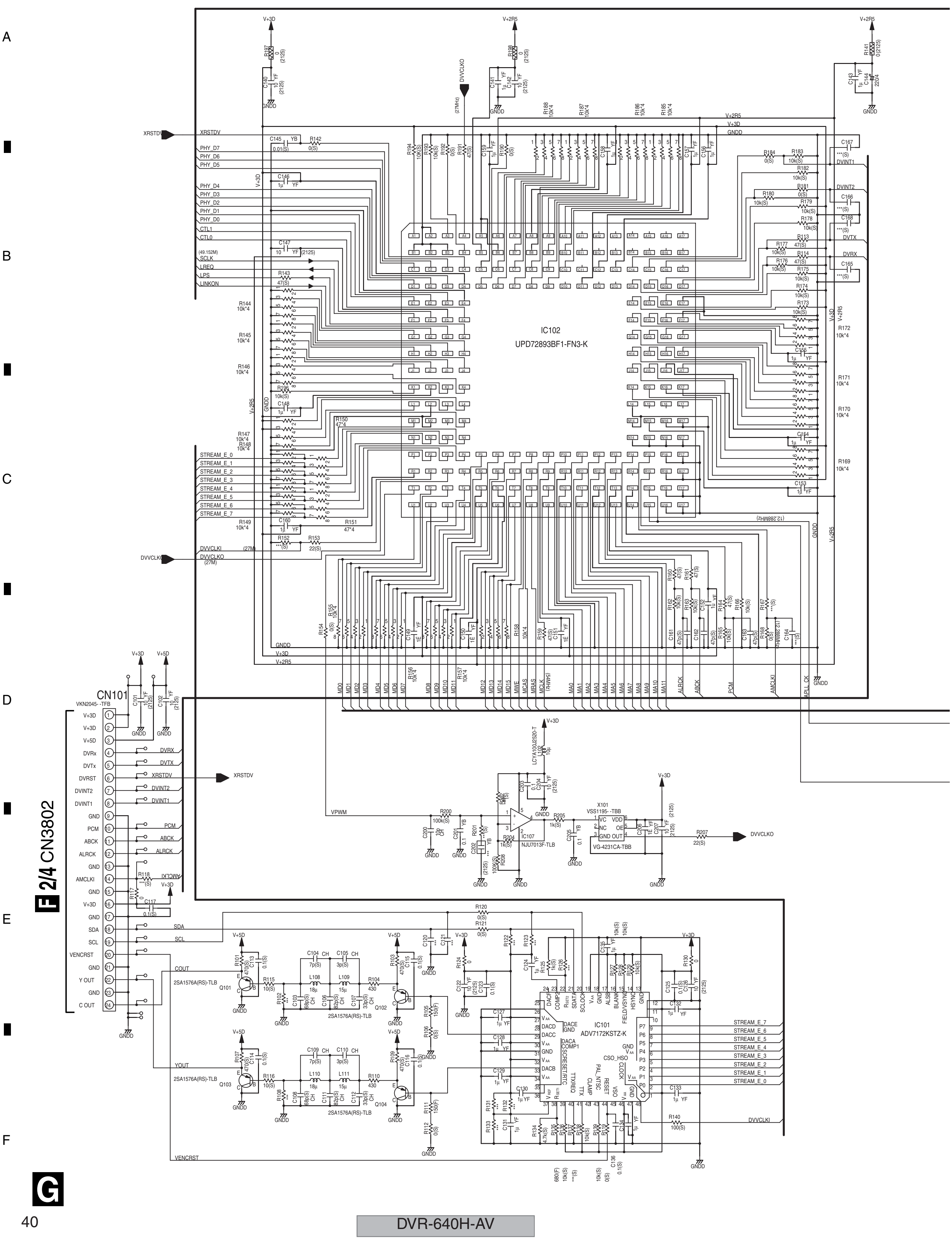
(VXX3157 : DVR-640H-AV)
(VXX3159 : DVR-540H-S)

This block is only for DVR-640H-AV.



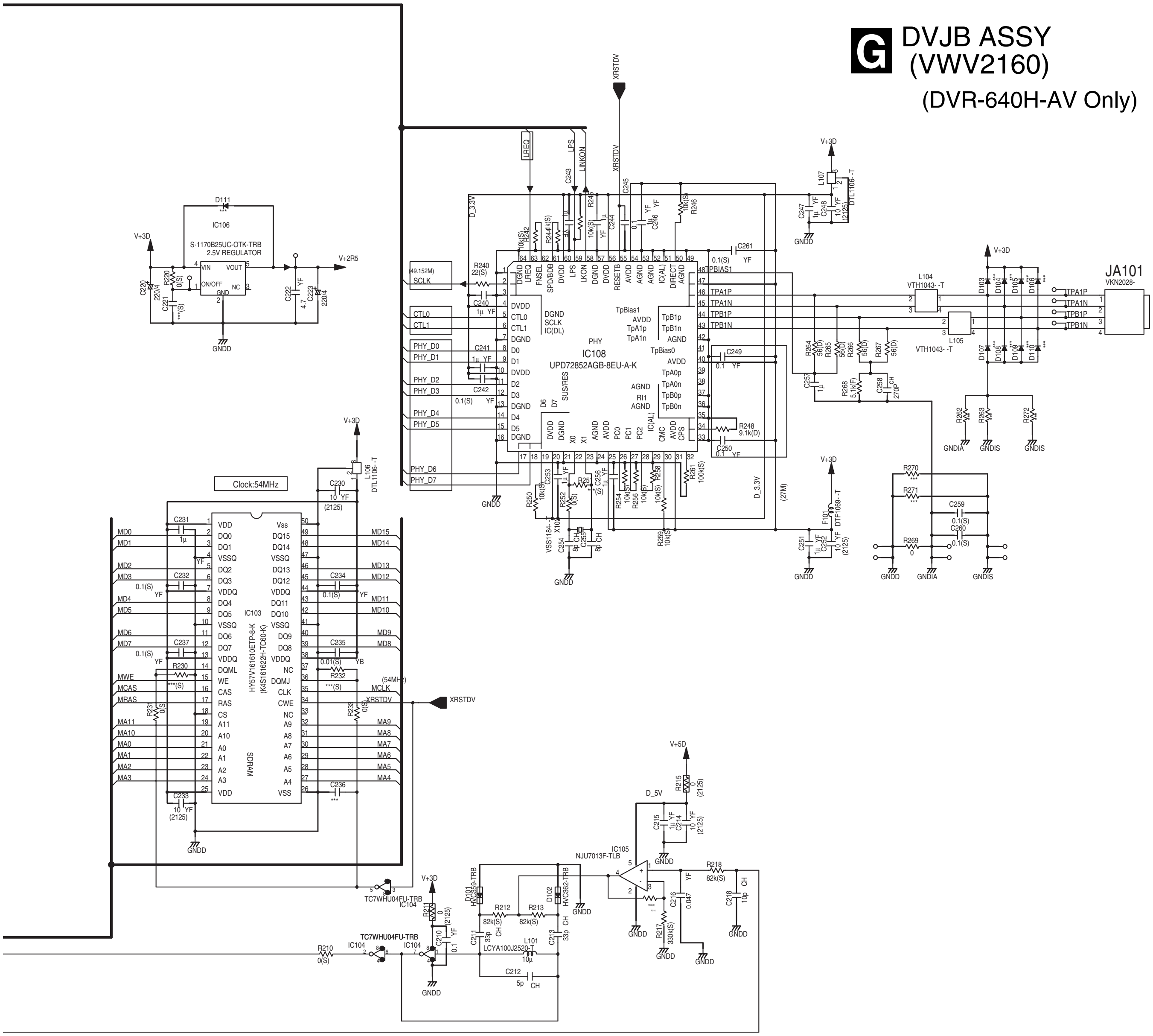
C5721
2R0
X5701
VSS1210-A
(6MHz)
C5722
2R0
R5722
0R0
HDATA7
HDATA6
HDATA5
HDATA4
HDATA3
HDATA2
HDATA1
HDATA0
VREGOUT
R5702
0R0
C5727
106
DCH1201-A-T
GNDD
C5720
105
C5719
105
C5718
105
IC5701
TDOTG242-0F0C8
1
2 D8
3 D9
4 D10
5 D11
6 WVDD1
7 D12
8 D13
9 D14
10 D15
11 2.5VDD1
12 INT
13 /WR
14 /RD
15 A1
16 VSS1
A2
17 A3
18 A4
19 A5
20 A6
21 WVDD2
22 A7
23 A8
24 A9
25 A10
26 A11
27 A12
28 VSS2
29 2.5VDD2
30 /CS
31 DP2
32 DM2
33 DP1
34 DM1
35 3.3VDD
36 /OC
37 /EXVBO
38 VBP
39 /PO
40 ID
41 ENVREG
42 VREGOUT
43 3.3VDDA1
44 VSSA1
45 3.3VDDA2
46 VBUS
47 /RESET
48 TEST
49 D0
50 D1
51 D2
52 D3
53 2.5VDD3
54 VSS3
55 WVDD3
56 D4
57 D5
58 D6
59 D7
60 CLKW
61 VSSA2
62 2.5VDDA
63 OSC1
64 OSC2
C5711
105
V+3D
R5713
103
C5712
105
C5728
106
DCH1201-A-T
USB_RST
USB_RST
USBVFB
C5717
105
C5716
105
VREGOUT
R5707
103
R5701
USBXPO
R5718
103
R5711
103
USBXOC
C5715
105
USBDM1
R5714
1501 (F)
USBDP1
C5729
106
DCH1201-A-T
C5713
105
C5714
105
R5725
0R0
R5730
153
R5731
153
HADRS3
HADRS4
HADRS5
HADRS6
HADRS7
HADRS8
HADRS9
HADRS10
HADRS11
HADRS12
GCSB
USBDP2
USBDM2
GNDD

3.13 DVJB ASSY (DVR-640H-AV Only)



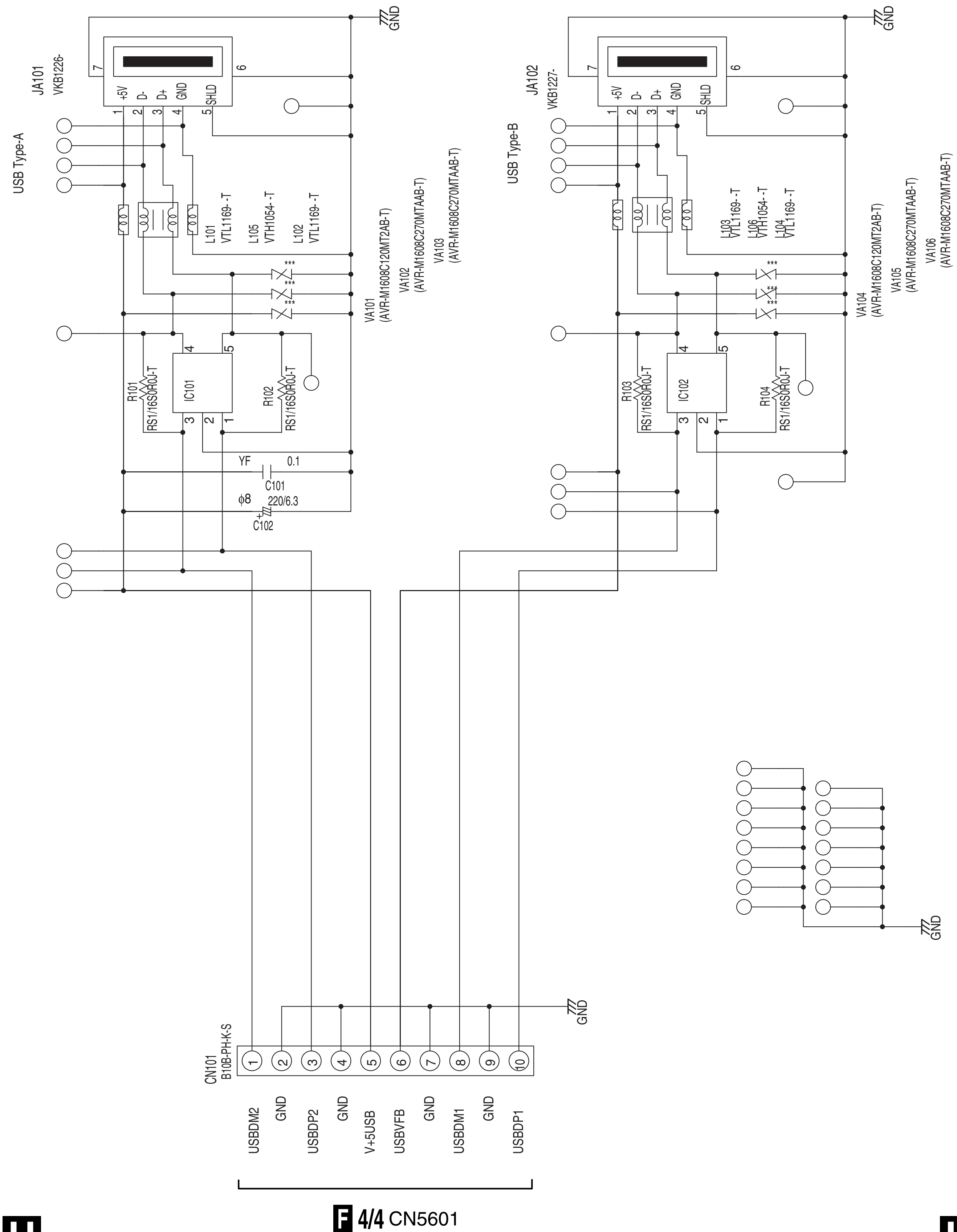
IC102
UPD72893BF1-FN3-K
IC101
ADV7172KSTZ-K
IC107
NJU7013F-TLB
X101
VSS1195- -TBB
VG-4231CA-TBB
CN101
VKN2045- -TFB
F 2/4 CN3802
XRSTDV
PHY_D7
PHY_D6
PHY_D5
PHY_D4
PHY_D3
PHY_D2
PHY_D1
PHY_D0
CTL1
CTL0
SCLK
LREQ
LPS
LINKON
STREAM_E_0
STREAM_E_1
STREAM_E_2
STREAM_E_3
STREAM_E_4
STREAM_E_5
STREAM_E_6
STREAM_E_7
DVVCLKI
DVVCLKO
DVINT1
DVINT2
DVTX
DVRX
V+3D
V+5D
V+2R5
GNDD
VPWM
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
MWE
MCAS
MRAS
MCLK
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
ALRCK
ABCK
PCM
AMCLKI
APLL_CK
V+3D
V+3D
V+5D
DVRx
DVTx
DVRST
DVINT2
DVINT1
GND
PCM
ABCK
ALRCK
GND
AMCLKI
GND
V+3D
GND
SDA
SCL
VENCRST
GND
Y OUT
GND
C OUT
COUT
YOUT
VENCRST
2SA1576A(RS)-TLB
Q101
Q102
Q103
Q104
LCYA100J2520-T
(27MHz)
(49.152M)
(12.288MHz)
1
2
3
4
A
B
C
D
E
F

G DVJB ASSY
(VWV2160)
(DVR-640H-AV Only)


A
B
C
D
E
F
D111
IC106
S-1170B25UC-OTK-TRB
2.5V REGULATOR
V+3D
V+2R5
VIN
VOUT
ON/OFF
NC
GND
R220 0(S)
C220 220/4
C221 ***(S)
C222 4.7 YF
C223 220/4
GNDD
LREQ
LPS
LINKON
XRSTDV
D_3.3V
C243
R245
C244
C245
C246
R246 10k(S)
R242
R244 1k(S)
R240 22(S)
(49.152M) SCLK
CTL0
CTL1
PHY_D0
PHY_D1
PHY_D2
PHY_D3
PHY_D4
PHY_D5
PHY_D6
PHY_D7
C240 1µ YF
C241 1µ YF
C242 0.1(S) YF
IC108
UPD72852AGB-8EU-A-K
PHY
DGND
SCLK
IC(DL)
SUS/RES
DVDD
LREQ
FNSEL
SPD/BDB
LPS
LKON
RESETB
AVDD
AGND
IC(AL)
DIRECT
TpBias1
TpA1p
TpA1n
TpB1p
TpB1n
TpBias0
TpA0p
TpA0n
TpB0p
TpB0n
RI1
CMC
CPS
PC0
PC1
PC2
X0
X1
C261 0.1(S) YF
TPBIAS1
TPA1P
TPA1N
TPB1P
TPB1N
C249 0.1 YF
R248 9.1k(D)
C250 0.1 YF
R250 10k(S)
R252 10k(S)
R253
R254 10k(S)
R256 10k(S)
R258 10k(S)
R259 10k(S)
R261 100k(S)
C253
C254 8p CH
C255 8p CH
C256
X101 VSS1184-
D_3.3V
(27M)
L107 DTL1106-T
C247 1µ YF
C248 10 YF (2125)
V+3D
GNDD
L104 VTH1043-T
L105 VTH1043-T
JA101 VKN2028-
D103
D104
D105
D106
D107
D108
D109
D110
R264 56(D)
R265 56(D)
R266 56(D)
R267 56(D)
C257 1µ
R268 5.1k(F)
C258 270P CH
R262
R263
R272
GNDIA
GNDIS
F101 DTF1069-T
C251 1µ YF
C252 10 YF (2125)
R270 ***
R271 ***
C259 0.1(S)
C260 0.1(S)
R269 0
Clock:54MHz
L106 DTL1106-T
C230 10 YF (2125)
IC103
HY57V161610ETP-8-K
(K4S161622H-TC60-K)
SDRAM
MD0–MD15
MWE
MCAS
MRAS
MA0–MA11
MCLK
(54MHz)
C231 1µ
C232 0.1(S) YF
C233 10 YF (2125)
C234 0.1(S) YF
C235 0.01(S) YB
C236 ***
C237 0.1(S) YF
R230 ***(S)
R231 0(S)
R232 ***(S)
R233 0(S)
VDD
VSS
VSSQ
VDDQ
DQML
DQMU
WE
CAS
RAS
CS
CLK
CKE
TC7WHU04FU-TRB
IC104
V+3D
R211 0 (2125)
R210 0(S)
C210 0.1 YF
D101 HVC362-TRB
D102 HVC362-TRB
R212 82k(S)
R213 82k(S)
C211 33p CH
C213 33p CH
L101 LCYA100J2520-T 10µ
C212 5p CH
IC105
NJU7013F-TLB
V+5D
D_5V
R215 0 (2125)
C214 10 YF (2125)
C215 1µ YF
C216 0.047 YF
R217 330k(S)
R218 82k(S)
C218 10p CH
GNDD

3.14 USBB ASSY (DVR-640H-AV Only)

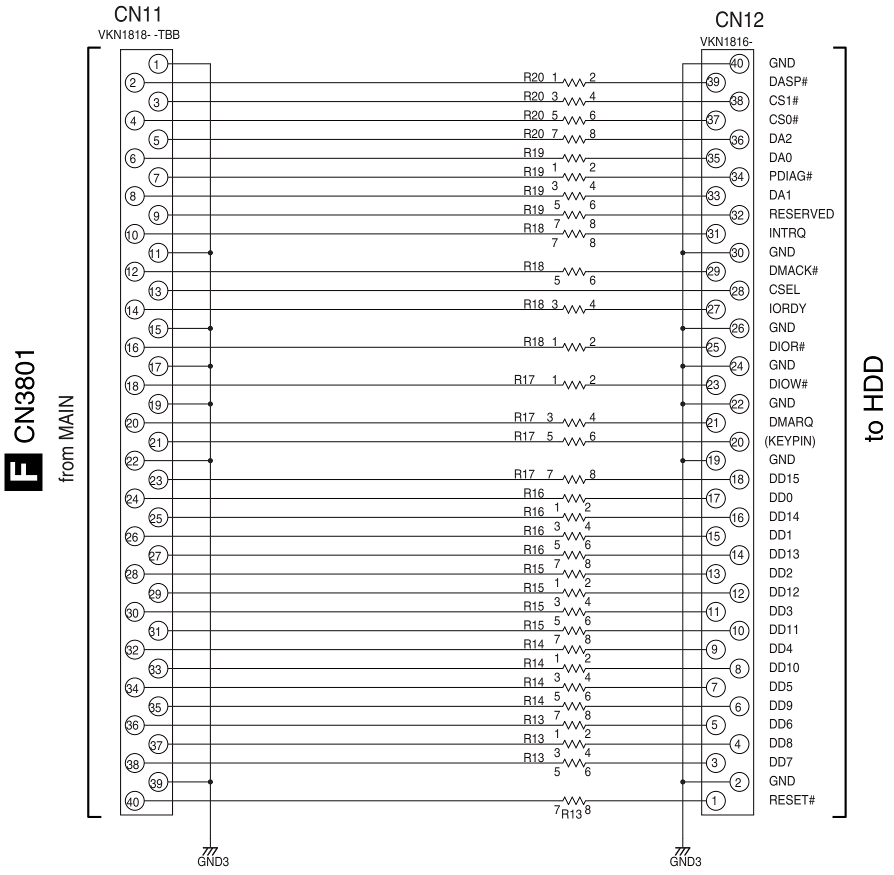
H USBB ASSY
(VWV2161)


GND
JA101
VKB1226-
USB Type-A
7
6
+5V
D-
D+
GND
SHLD
1 2 3 4 5
L101
VTL1169- -T
L105
VTH1054- -T
L102
VTL1169- -T
VA101
(AVR-M1608C120MT2AB-T)
VA102
(AVR-M1608C270MTAAB-T)
VA103
(AVR-M1608C270MTAAB-T)
***
R101
RS1/16S0R0J-T
IC101
R102
RS1/16S0R0J-T
4 5 3 2 1
YF
0.1
C101
ϕ8
220/6.3
C102
JA102
VKB1227-
USB Type-B
L103
VTL1169- -T
L106
VTH1054- -T
L104
VTL1169- -T
VA104
(AVR-M1608C120MT2AB-T)
VA105
(AVR-M1608C270MTAAB-T)
VA106
(AVR-M1608C270MTAAB-T)
R103
RS1/16S0R0J-T
IC102
R104
RS1/16S0R0J-T
CN101
B10B-PH-K-S
1 2 3 4 5 6 7 8 9 10
USBDM2
GND
USBDP2
GND
V+5USB
USBVFB
GND
USBDM1
GND
USBDP1

F 4/4 CN5601

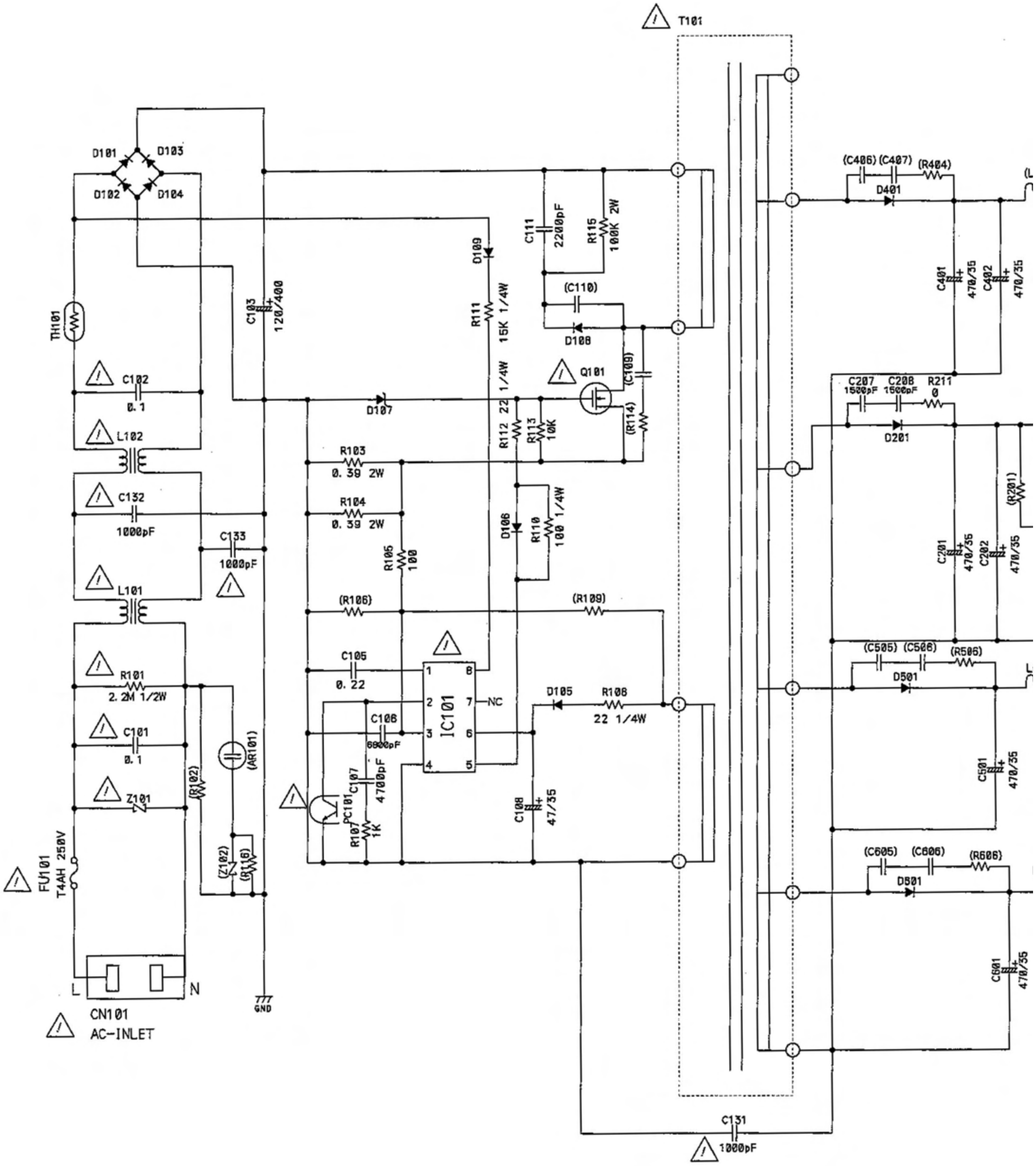
3.15 ATAB ASSY

I ATAB ASSY (VXX3140)

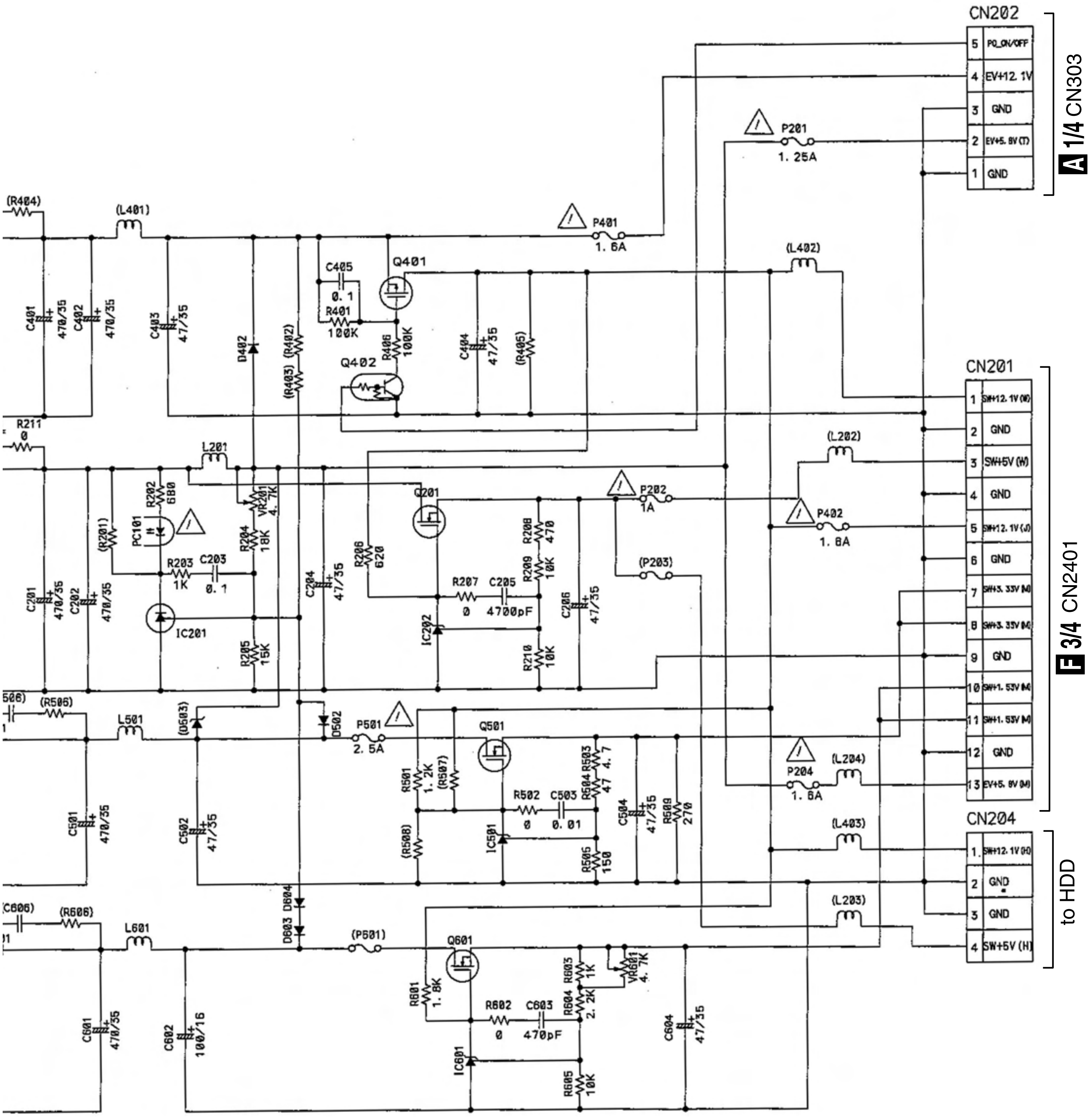

CN11
VKN1818- -TBB
CN12
VKN1816-
F CN3801
from MAIN
to HDD
GND
DASP#
CS1#
CS0#
DA2
DA0
PDIAG#
DA1
RESERVED
INTRQ
GND
DMACK#
CSEL
IORDY
GND
DIOR#
GND
DIOW#
GND
DMARQ
(KEYPIN)
GND
DD15
DD0
DD14
DD1
DD13
DD2
DD12
DD3
DD11
DD4
DD10
DD5
DD9
DD6
DD8
DD7
GND
RESET#
R20
R19
R18
R17
R16
R15
R14
R13
GND3
GND3

3.16 POWER SUPPLY UNIT

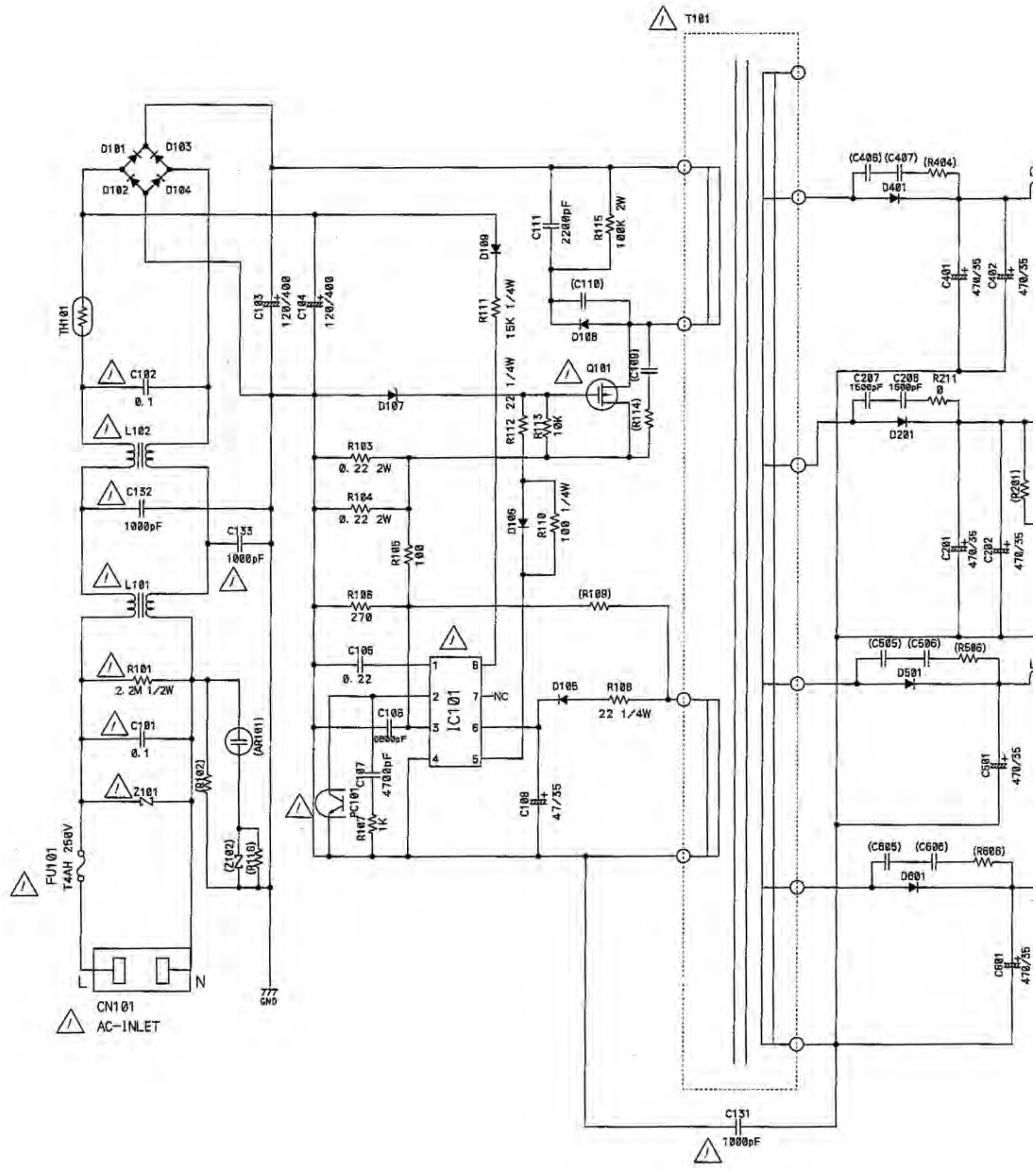
J POWER SUPPLY UNIT (VWR1399)


T101
D101
D103
D102
D104
TH101
C102
0.1
L102
C132
1000pF
C133
1000pF
L101
R101
2.2M 1/2W
C101
0.1
Z101
(R102)
(AR101)
(Z102)
(R116)
FU101
T4AH 250V
CN101
AC-INLET
L
N
GND
C103
120/400
D109
R111
15K 1/4W
C111
2200pF
R115
100K 2W
(C110)
D108
Q101
(C109)
(R114)
D107
R112 22 1/4W
R113
10K
R103
0.39 2W
R104
0.39 2W
R105
100
D106
R110
100 1/4W
(R106)
(R109)
C105
0.22
C106
6800pF
IC101
1
2
3
4
5
6
7
8
NC
C107
4700pF
PC101
R107
1K
D105
R108
22 1/4W
C108
47/35
C131
1000pF
(C406)
(C407)
(R404)
D401
C401
470/35
C402
470/35
C207
1500pF
C208
1500pF
R211
0
D201
(R201)
C201
470/35
C202
470/35
(C505)
(C506)
(R506)
D501
C501
470/35
(C605)
(C606)
(R606)
D601
C601
470/35

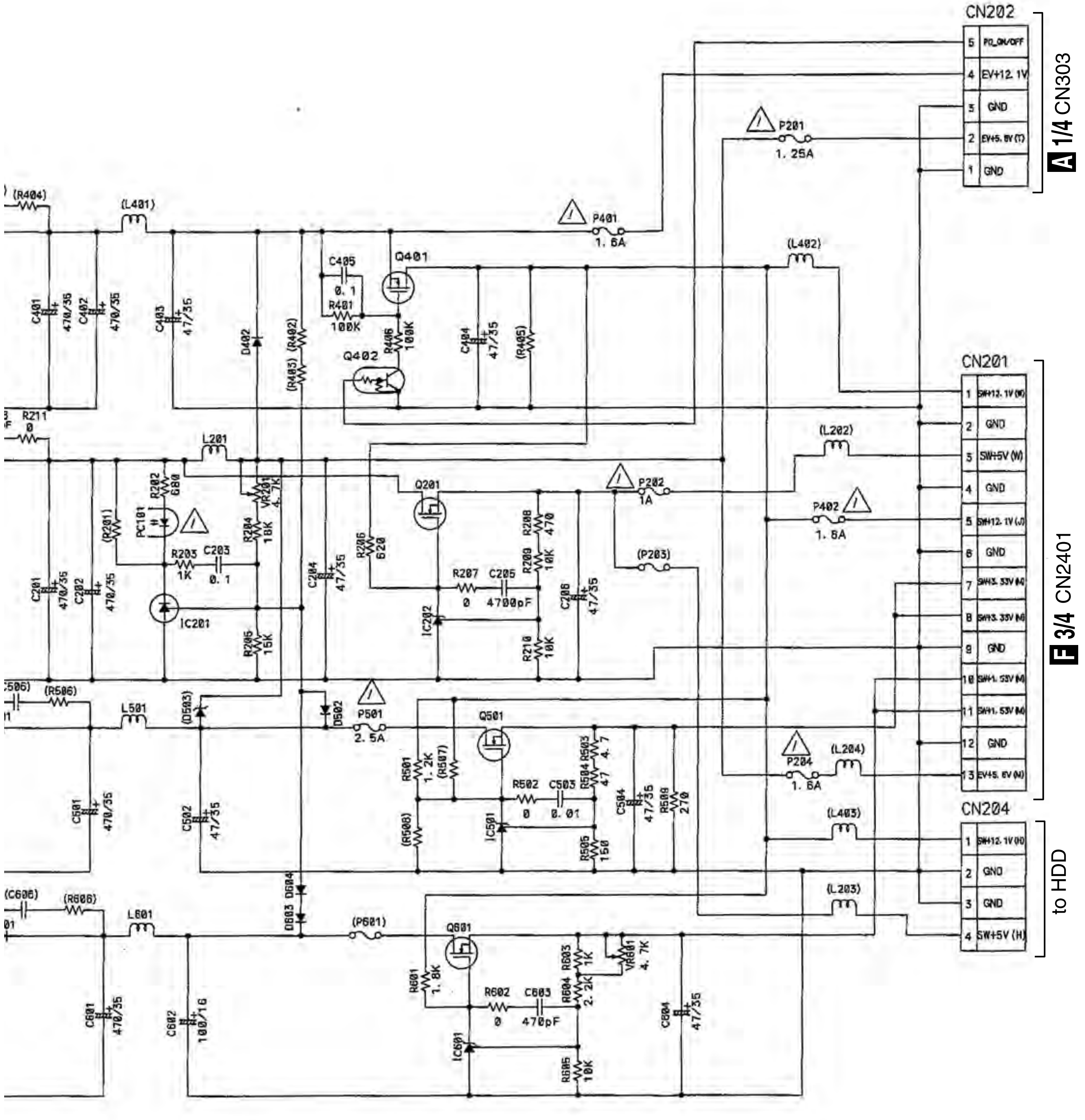
Unit	Resistor	Ω/W (under 1/4W for no direction W
	Capacitor	μF/V (under 50V for no direction V


CN202
5 PO_ON/OFF
4 EV+12.1V
3 GND
2 EV+5.8V (T)
1 GND
A 1/4 CN303
P201
1.25A
(R404)
(L401)
P401
1.6A
C405
0.1
Q401
R401
100K
R406
100K
C401
470/35
C402
470/35
C403
47/35
D402
(R402)
(R403)
Q402
C404
47/35
(R405)
(L402)
CN201
1 SW+12.1V (W)
2 GND
3 SW+5V (W)
4 GND
5 SW+12.1V (J)
6 GND
7 SW+3.33V (M)
8 SW+3.33V (M)
9 GND
10 SW+1.53V (M)
11 SW+1.53V (M)
12 GND
13 EV+5.8V (M)
F 3/4 CN2401
R211
0
L201
R202
680
VR201
4.7K
(R201)
PC101
R204
18K
R203
1K
C203
0.1
IC201
R205
15K
C201
470/35
C202
470/35
C204
47/35
R206
620
Q201
R207
0
C205
4700pF
R208
470
R209
10K
IC202
R210
10K
C206
47/35
P202
1A
(P203)
(L202)
P402
1.6A
(C506)
(R506)
L501
(D503)
D502
P501
2.5A
Q501
R501
1.2K
(R507)
R502
0
C503
0.01
R503
4.7
R504
47
C501
470/35
C502
47/35
(R508)
IC501
R505
150
C504
47/35
R509
270
P204
1.6A
(L204)
CN204
1 SW+12.1V (H)
2 GND
3 GND
4 SW+5V (H)
to HDD
(L403)
(L203)
(C606)
(R606)
L601
D603
D604
(P601)
Q601
R601
1.8K
R602
0
C603
470pF
R603
1K
R604
2.2K
VR601
4.7K
C601
470/35
C602
100/16
C604
47/35
IC601
R605
10K

J POWER SUPPLY UNIT (VWR1400)


T101
D101
D103
D102
D104
TH101
C102
0.1
L102
C132
1000pF
C133
1000pF
L101
R101
2.2M 1/2W
C101
0.1
Z101
(R102)
(AR101)
(Z102)
(R116)
FU101
T4AH 250V
L
N
CN101
AC-INLET
GND
C103
120/400
C104
120/400
D109
R111
15K 1/4W
D107
R112 22 1/4W
R113
10K
Q101
C111
2200pF
R115
100K 2W
(C110)
D108
(C109)
(R114)
R103
0.22 2W
R104
0.22 2W
R105
100
D106
R110
100 1/4W
R106
270
(R109)
C105
0.22
C106
6800pF
C107
4700pF
PC101
R107
1K
IC101
NC
D105
R108
22 1/4W
C108
47/35
C131
1000pF
(C406)
(C407)
(R404)
D401
C401
470/35
C402
470/35
C207
1500pF
C208
1500pF
R211
0
D201
(R201)
C201
470/35
C202
470/35
(C505)
(C506)
(R506)
D501
C501
470/35
(C605)
(C606)
(R606)
D601
C601
470/35

<table>
<tr><td rowspan="2">Unit</td><td>Resistor</td><td>Ω/W (under 1/4W for no direction W</td></tr>
<tr><td>Capacitor</td><td>μF/V (under 50V for no direction V</td></tr>
</table>

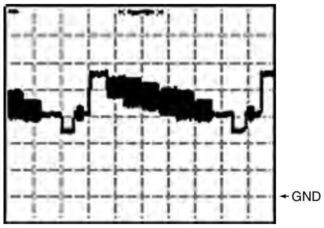

CN202
5 PO_ON/OFF
4 EV+12. 1V
3 GND
2 EV+5. 8V (T)
1 GND
A 1/4 CN303
P201
1. 25A
(R404)
(L401)
P401
1. 6A
C405
0. 1
Q401
R401
100K
R406
100K
C401
470/35
C402
470/35
C403
47/35
D402
(R402)
(R403)
Q402
C404
47/35
(R405)
(L402)
CN201
1 SW+12. 1V (W)
2 GND
3 SW+5V (W)
4 GND
5 SW+12. 1V (J)
6 GND
7 SW+3. 33V (M)
8 SW+3. 33V (M)
9 GND
10 SW+1. 53V (M)
11 SW+1. 53V (M)
12 GND
13 EV+5. 6V (M)
F 3/4 CN2401
R211
0
L201
R202
680
PC101
(R201)
VR201
4. 7K
R204
18K
R203
1K
C203
0. 1
C201
470/35
C202
470/35
IC201
R205
15K
C204
47/35
Q201
R206
620
R208
470
R209
10K
R207
0
C205
4700pF
IC202
C206
47/35
R210
10K
P202
1A
(L202)
P402
1. 6A
(P203)
(C506)
(R506)
L501
(D503)
D502
P501
2. 5A
Q501
R501
1. 2K
(R507)
R503
4. 7
R504
47
R502
0
C503
0. 01
C504
47/35
R509
270
C501
470/35
C502
47/35
(R508)
IC501
R505
150
P204
1. 6A
(L204)
(L403)
CN204
1 SW+12. 1V (H)
2 GND
3 GND
4 SW+5V (H)
to HDD
(C606)
(R606)
L601
D604
D603
(P601)
Q601
R601
1. 8K
R603
1K
VR601
4. 7K
R602
0
C603
470pF
R604
2. 2K
C601
470/35
C602
100/16
IC601
R605
10K
C604
47/35
(L203)

3.17 WAVE FORMS

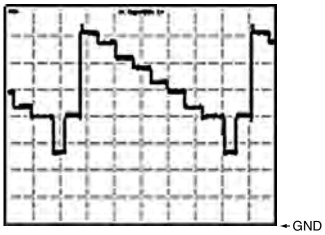
Note : The encircled numbers denote measuring point in the schematic diagram.

A TUJB ASSY

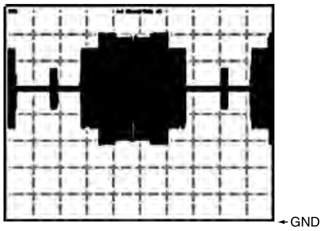
① **IC100-pin18 (TU-VIN)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



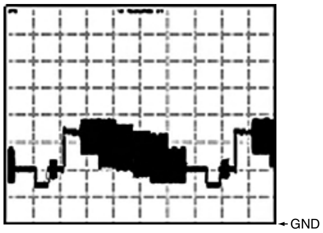
② **C2036+side (Y1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



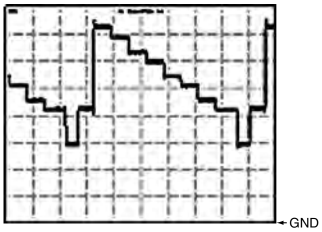
③ **IC100-pin34 (C1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



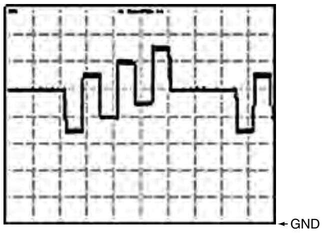
④ **C2037+side (V1OUT)**
(Function : DVD play)
V:1V/div. H:10µsec/div.



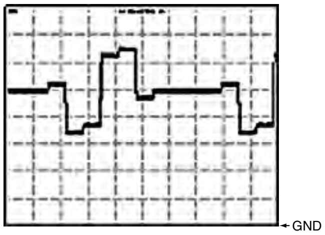
⑤ **C2035+side (YOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



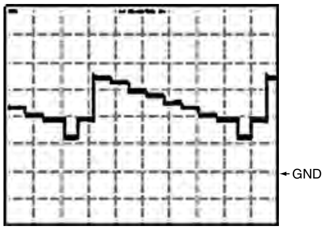
⑥ **C2034+side (CbOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



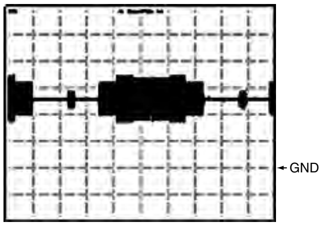
⑦ **C2033+side (CrOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



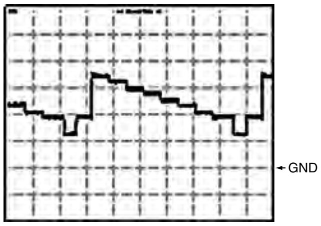
⑧ **CN4002-pin19 (Y_OUT MtoT)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



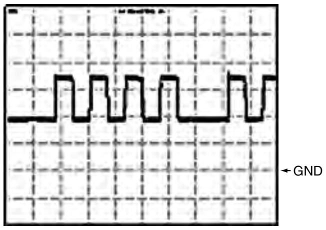
⑨ **CN4002-pin17 (C_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



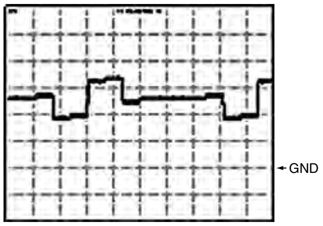
⑩ **CN4002-pin21 (Yp_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



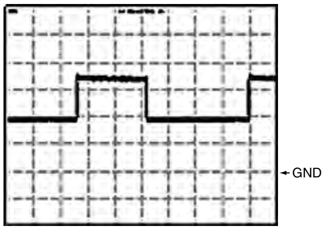
⑪ **CN4002-pin23 (Cb_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



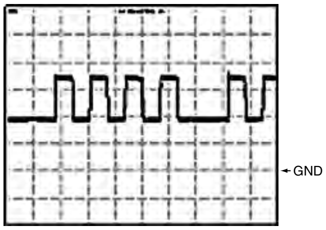
⑫ **CN4002-pin25 (Cr_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



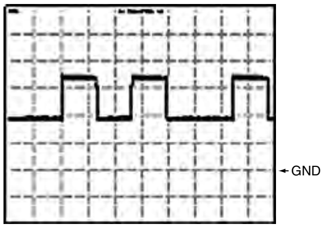
⑬ **CN4002-pin21 (Y/G_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



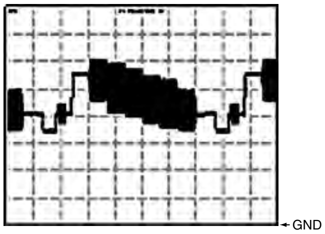
⑭ **CN4002-pin23 (Cb/B_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



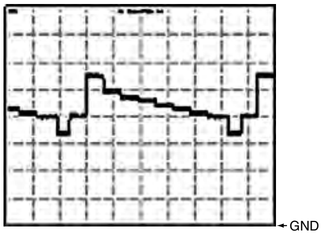
⑮ **CN4002-pin25 (Cr/R_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



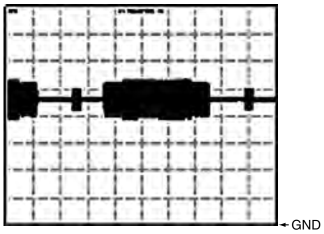
⑯ **IC100-pin14 (2VIN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



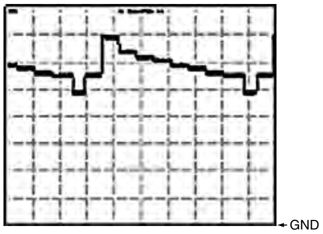
⑰ **IC100-pin7 (Y2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



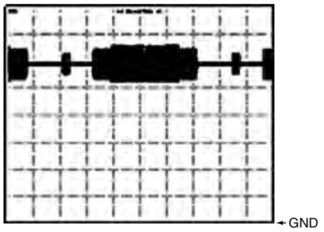
⑱ **IC100-pin9 (C2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



⑲ **CN4002-pin28 (Y_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



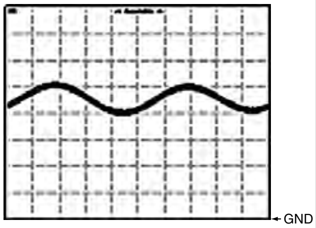
⑳ **CN4002-pin30 (C_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



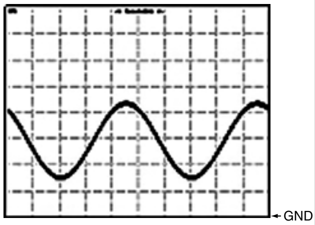
A TUJB ASSY

Measurement Condition :

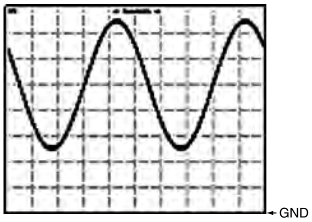
㉑ IC100-pin87 (TU-LIN)
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



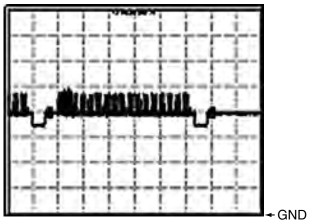
㉒ C2038+side (L_OUT)
Function : DVD play)
V:500mV/div. H:10µsec/div.



㉓ CN4002-pin32 (L_IN)
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



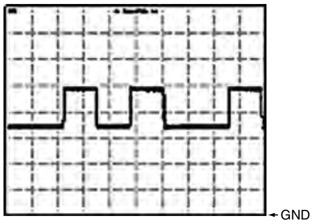
㉔ IC101-pin81 (TEXTV)
(Function : RF IN)
V:1V/div. H:10µsec/div.



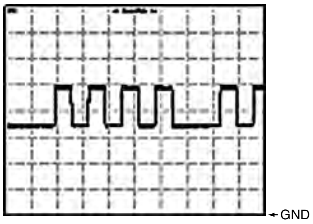
B SCRB ASSY

Measurement Condition :

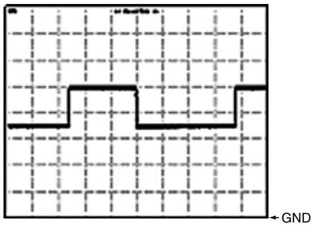
① JA801-pin15 (R/C IN)
(Function : LINE1 IN)
V:500mV/div. H:10µsec/div.



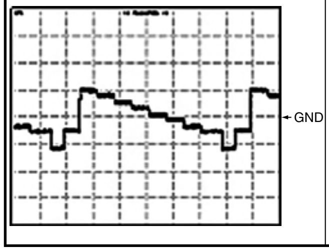
② JA801-pin7 (BIN)
(Function : LINE1 IN)
V:500mV/div. H:10µsec/div.



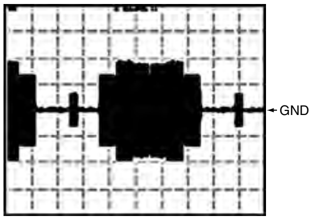
③ JA801-pin11 (G IN)
(Function : LINE1 IN)
V:500mV/div. H:10µsec/div.



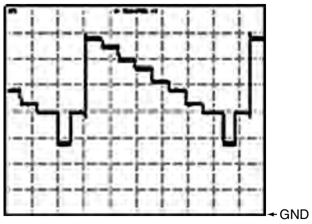
④ JA801-pin20 (AV2_V/Y IN))
(Function : LINE1 IN)
V:1V/div. H:10µsec/div.



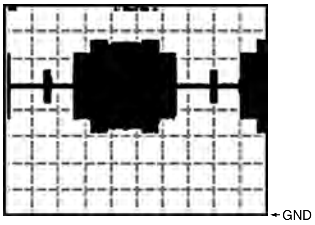
⑤ JA801-pin15 (R/C IN)
(Function : LINE1 IN)
V:500mV/div. H:10µsec/div.



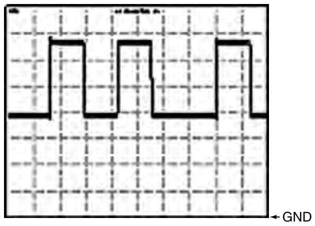
⑥ CN1-pin29 (AV1_V/Y_OUT)
(Function : DVD play)
V:500mV/div. H:10µsec/div.



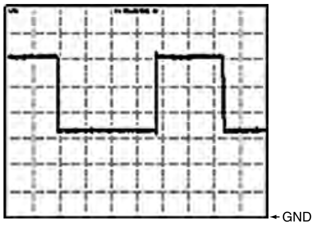
⑦ CN1-pin26 (AV1_R/C_OUT)
(Function : DVD play)
V:500mV/div. H:10µsec/div.



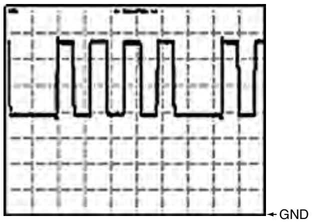
⑧ CN1-pin26 (AV1_R/C_OUT)
(Function : DVD play)
V:1V/div. H:10µsec/div.



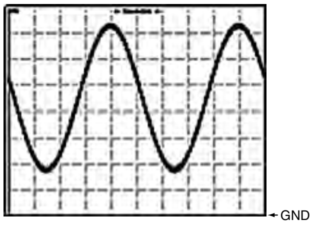
⑨ CN1-pin24 (AV1_G_OUT)
(Function : DVD play)
V:500mV/div. H:10µsec/div.



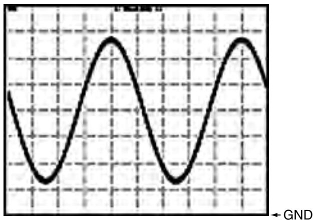
⑩ CN1-pin12 (AV1_B_OUT)
(Function : DVD play)
V:500mV/div. H:10µsec/div.



⑪ CN1-pin4 (AV1_L_OUT)
(Function : DVD play)
V:500mV/div. H:10µsec/div.



⑫ JA801-pin6 (AV2_L_IN)
(Function : LINE1 IN)
V:1V/div. H:10µsec/div.

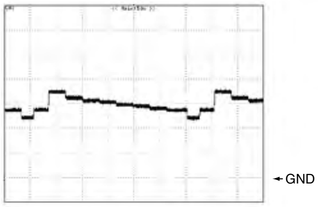


F MAIN ASSY

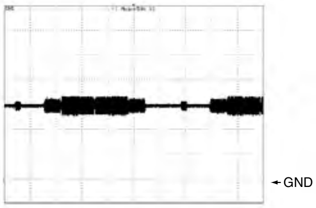
Measurement Condition :

No.1 - 8 : EBU Color Bar (100 / 0 / 75 / 0)

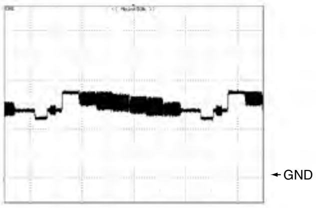
① **CN2301 Pin8 (Y_IN)**
V: 1V/div. H: 10us/div.



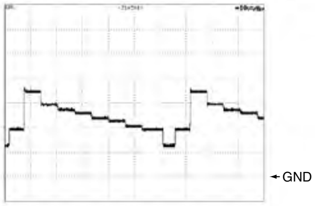
② **CN2301 Pin6 (C_IN)**
V: 1V/div. H: 10us/div.



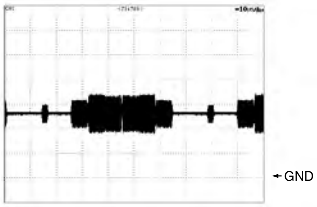
③ **CN2301 Pin_8 (CVBS_IN)**
V: 1V/div. H: 10us/div.



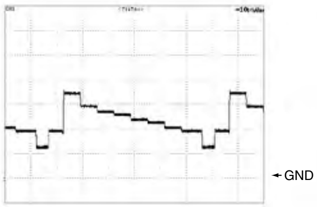
④ **CN2301 Pin17 (Y_OUT)**
V: 0.5V/div. H: 10us/div.



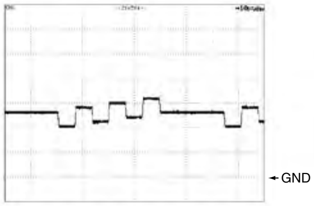
⑤ **CN2301 Pin19 (C_OUT)**
V: 0.5V/div. H: 10us/div.



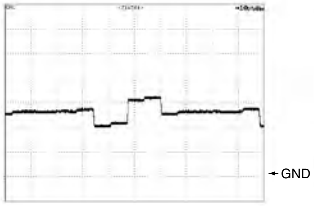
⑥ **CN2301 Pin15 (YP_OUT)**
V: 0.5V/div. H: 10us/div.



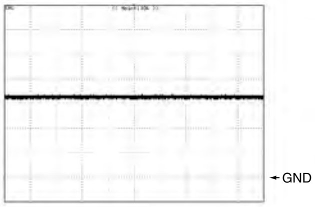
⑦ **CN2301 Pin13 (CB_OUT)**
V: 0.5V/div. H: 10us/div.



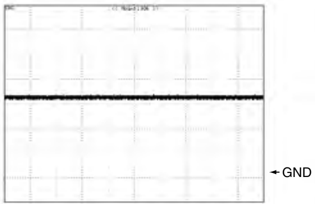
⑧ **CN2301 Pin11 (CR_OUT)**
V: 0.5V/div. H: 10us/div.



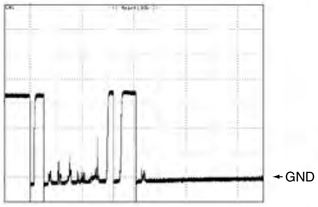
⑨ **IC501 Pin22 (XDMUTE1)**
V: 1V/div. H: 20us/div.



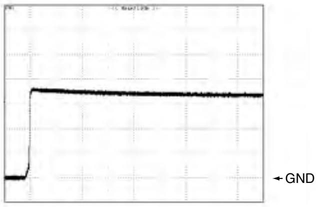
⑩ **IC501 Pin23 (XDMUTE2)**
V: 1V/div. H: 20us/div.



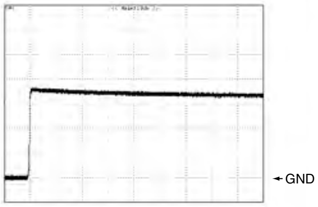
⑪ **CN601 Pin3 (CLOSE)**
open → close
V: 1V/div. H: 20us/div.



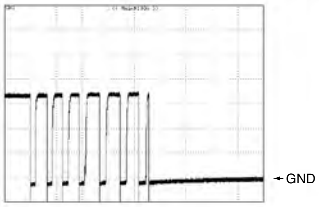
⑫ **CN601 Pin3 (CLOSE)**
close → open
V: 1V/div. H: 20us/div.



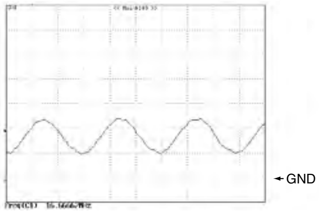
⑬ **CN601 Pin5 (CLOSE)**
open → close
V: 1V/div. H: 20us/div.



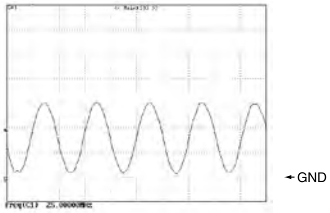
⑭ **CN601 Pin5 (CLOSE)**
close → open
V: 1V/div. H: 20us/div.



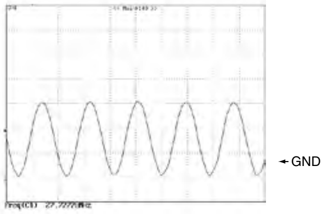
⑮ **X201 (16.93MHz)**
V: 1V/div. H: 20ns/div.



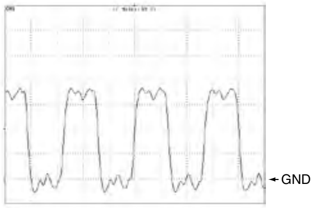
⑯ **X1001 (24.576MHz)**
V: 1V/div. H: 20ns/div.



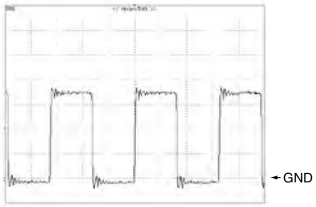
⑰ **X1002 (27MHz)**
V: 1V/div. H: 20ns/div.



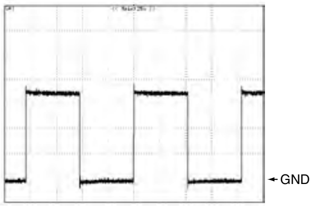
⑱ **IC3101 Pin11 (ADCCLKO)**
V: 1V/div. H: 20ns/div.



⑲ **IC3101 Pin12 (AD_BCK)**
V: 1V/div. H: 100ns/div.

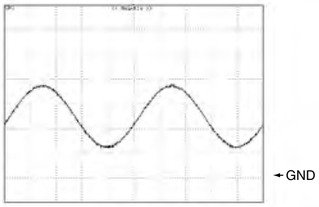


⑳ **IC3101 Pin10 (AD_LRCK)**
V: 1V/div. H: 5us/div.

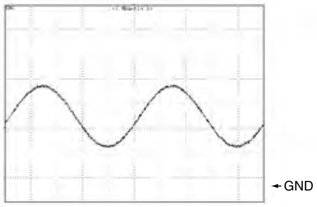


F MAIN ASSY

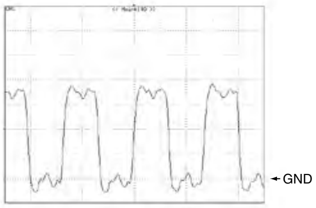
㉑ **CN2301 Pin4 (LCH IN)**
V: 1V/div. H: 200us/div.



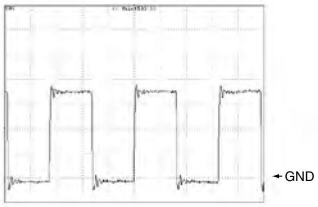
㉒ **CN2301 Pin2 (RCH IN)**
V: 1V/div. H: 200us/div.



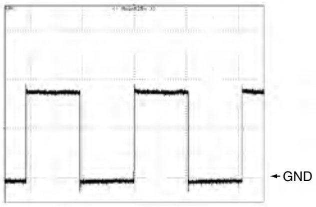
㉓ **IC3201 Pin16 (DACCLKO)**
V: 1V/div. H: 20ns/div.



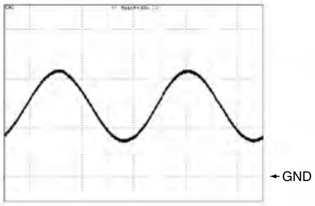
㉔ **IC3201 Pin1 (DACBCKO)**
V: 1V/div. H: 100ns/div.



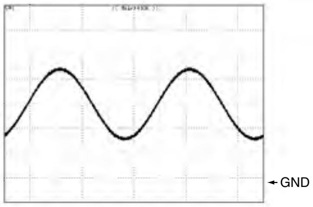
㉕ **IC3201 Pin3 (DACLRCKO)**
V: 0.5V/div. H: 5us/div.



㉖ **CN2301 Pin21 (LCH OUT)**
V: 2V/div. H: 200us/div.



㉗ **CN2301 Pin23 (RCH OUT)**
V: 2V/div. H: 200us/div.



A

B

C

D

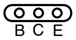
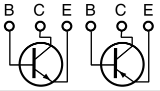
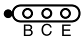
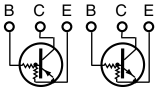
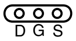
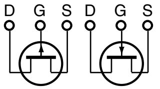
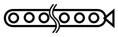
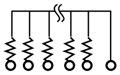
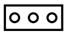
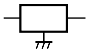
E

F

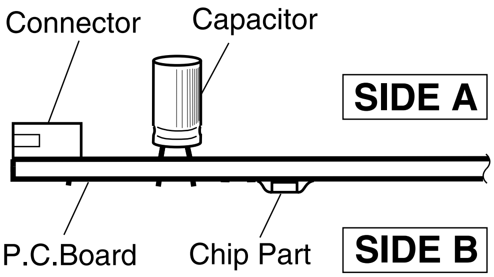
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

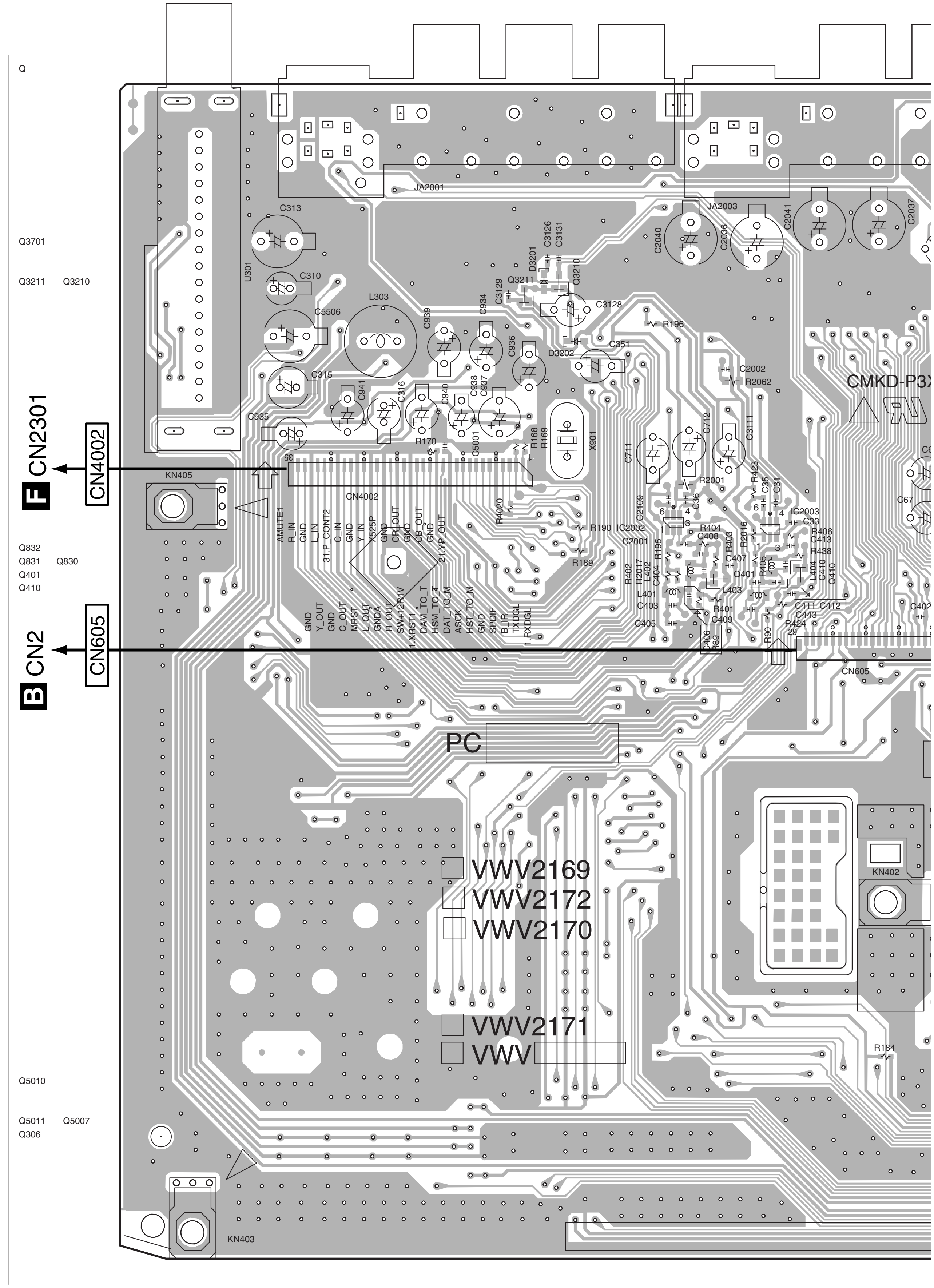

Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

4.1 TUJB ASSY

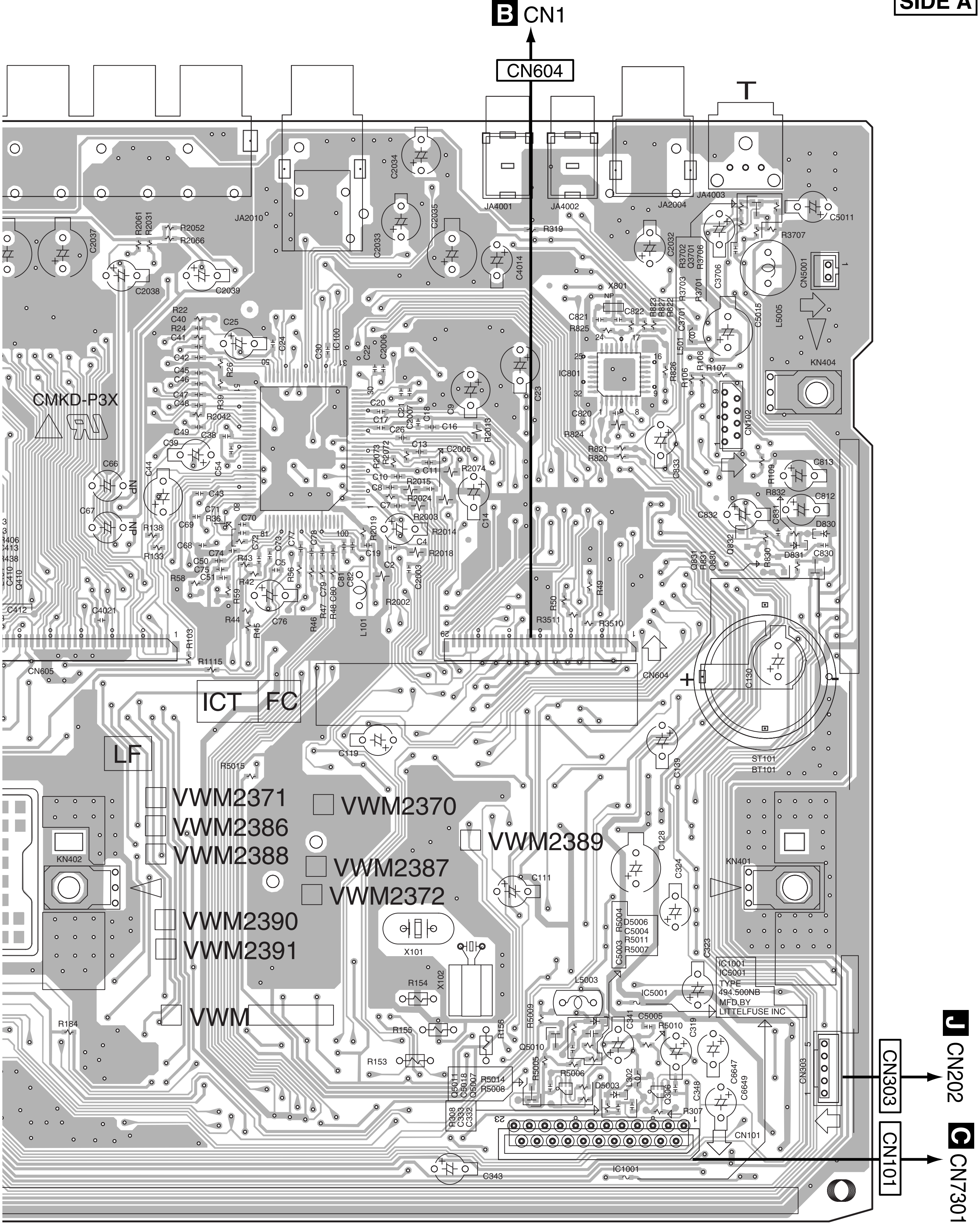
SIDE A

A TUJB ASSY

IC	Q
	Q3701
	Q3211 Q3210
IC100	
IC801	
IC2003	
IC2002	
	Q832
	Q831 Q830
	Q401
	Q410
IC5001	
	Q5010
	Q5011 Q5007
	Q306
IC1001	


F CN2301
CN4002
B CN2
CN605
JA2001
JA2003
C313
U301
C310
C5506
L303
C315
C935
C941
C316
C940
C939
C934
C936
C938
C937
C3129
Q3211
D3201
C3126
C3131
Q3210
C3128
R196
D3202
C351
C2040
C2036
C2041
C2037
C2002
R2062
CMKD-P3X
R170
C5001
R168
R169
X901
C711
C712
C3111
KN405
CN4002
AMUTE1
R_IN
GND
L_IN
31:P_CONT2
C_IN
GND
Y_IN
X525P
GND
CR_OUT
GND
CB_OUT
GND
21:YP_OUT
R4020
R190
IC2002
C2001
R189
C2109
R2001
R423
C35
C31
C36
IC2003
C33
R404
C408
R406
C413
R438
R195
R403
R2016
C407
Q401
R405
L404
C410
Q410
R402
R2017
L402
C404
L401
C403
C405
L403
R401
C409
C411
C412
C443
R424
C402
GND
Y_OUT
GND
C_OUT
MRST
L_OUT
GNDA
R_OUT
SW+12R1V
1:XRST1
DAM_TO_T
HSM_TO_M
DAT_TO_M
ASCK
HST_TO_M
GND
SPDIF
B_IR
TXDGL
1:RXDGL
C406
R89
R90
29
CN605
C67
PC
VWV2169
VWV2172
VWV2170
VWV2171
VWV
KN402
R184
KN403

SIDE A


B CN1
CN604
T
JA4001
JA4002
JA2004
JA4003
JA2010
C2034
C2035
C2033
C2037
C2038
C2039
C2032
C4014
C5011
R2061
R2031
R2052
R2066
R319
R3707
R3702
Q3701
R3706
R3703
R3701
C3706
CN5001
C5015
L5005
X801
NP
C822
C821
R825
R823
R827
R822
C3701
L501
IC801
R826
R106
R108
R107
KN404
CN102
CMKD-P3X
R22
C40
R24
C41
C42
C45
C46
C47
C48
C25
C24
C30
IC100
C22
C2006
R26
R39
R2042
C49
C38
C39
C20
C17
C21
C2007
C18
C9
C26
C16
R2013
C23
C820
R824
R821
R820
C833
C813
R109
R832
C812
C832
C831
D830
Q832
Q831
R831
Q830
R830
D831
C830
C66
NP
C44
C54
C13
C2005
R2073
R2072
R2074
C10
C11
R2015
C8
R2024
C7
C14
C67
NP
C43
C71
R36
C70
R138
C69
R133
C68
C74
C50
C75
C51
C72
C73
C77
C78
C5
R43
R42
R56
R58
R59
R2019
R2003
R2014
C4
C19
R2018
C2
C2003
C81
C82
C79
C80
R47
R48
R46
R44
R45
C76
L101
R2002
R49
R50
R3511
R3510
C412
C4021
R103
R1115
CN605
C410
Q410
R406
C413
R438
CN604
C130
ICT
FC
LF
C119
R5015
C139
ST101
BT101
VWM2371
VWM2386
VWM2388
VWM2370
VWM2389
VWM2387
VWM2372
VWM2390
VWM2391
VWM
KN402
KN401
C128
C111
C324
X101
X102
R154
R155
R156
R153
R184
R5004
D5006
C5004
R5011
R5007
C5003
C323
IC1001
IC5001
TYPE
494.500NB
MFD.BY
LITTELFUSE INC
L5003
IC5001
R5009
C341
C5005
R5010
C319
Q5010
R5005
R5006
R5014
R5008
Q5011
C5018
Q5007
D5003
L302
Q306
C348
C6647
C6649
R307
R308
C333
C332
CN101
CN303
C343
IC1001
J CN202
CN303
C CN7301
CN101

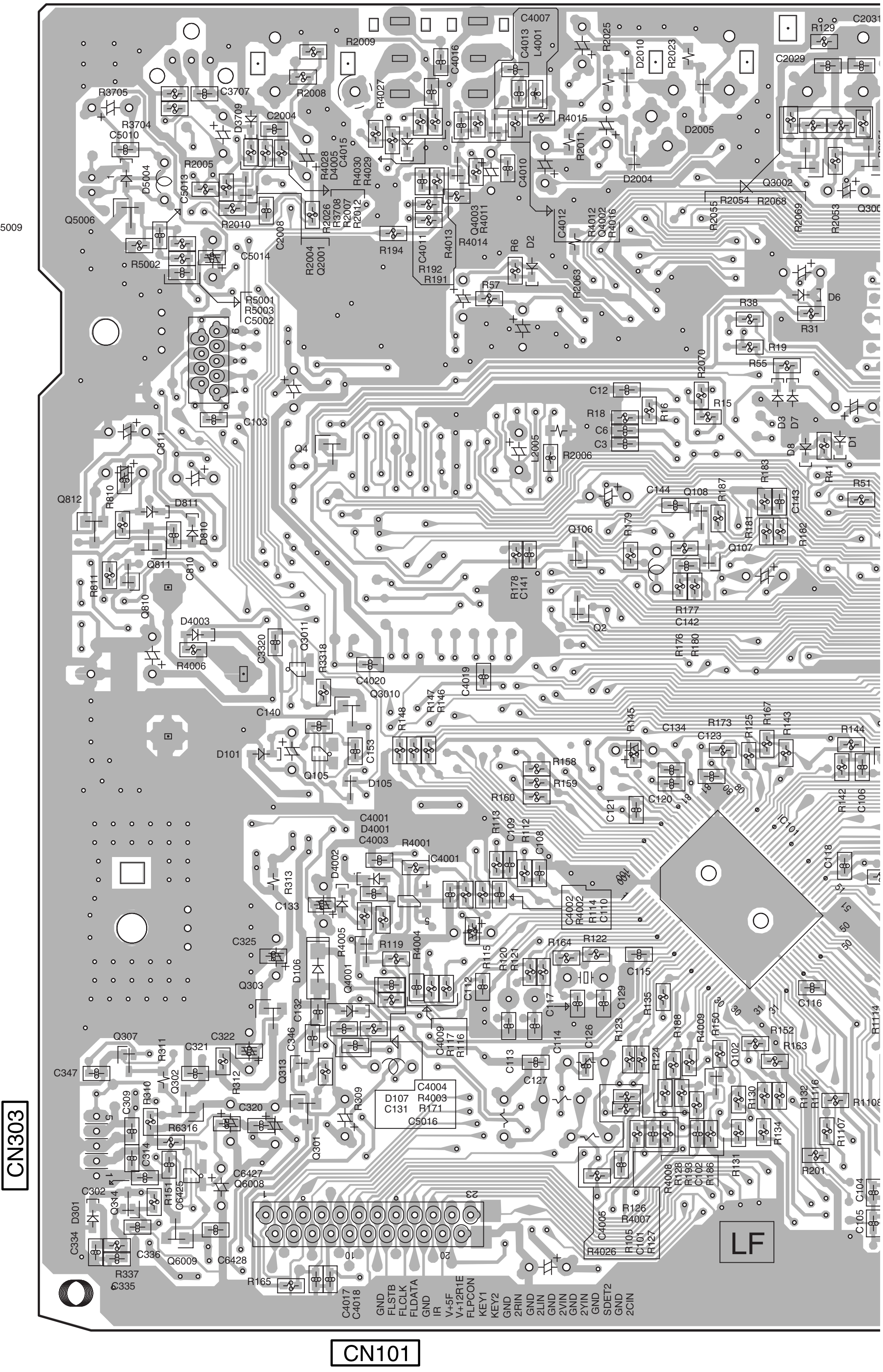
(VNP2033-C)

A

SIDE B

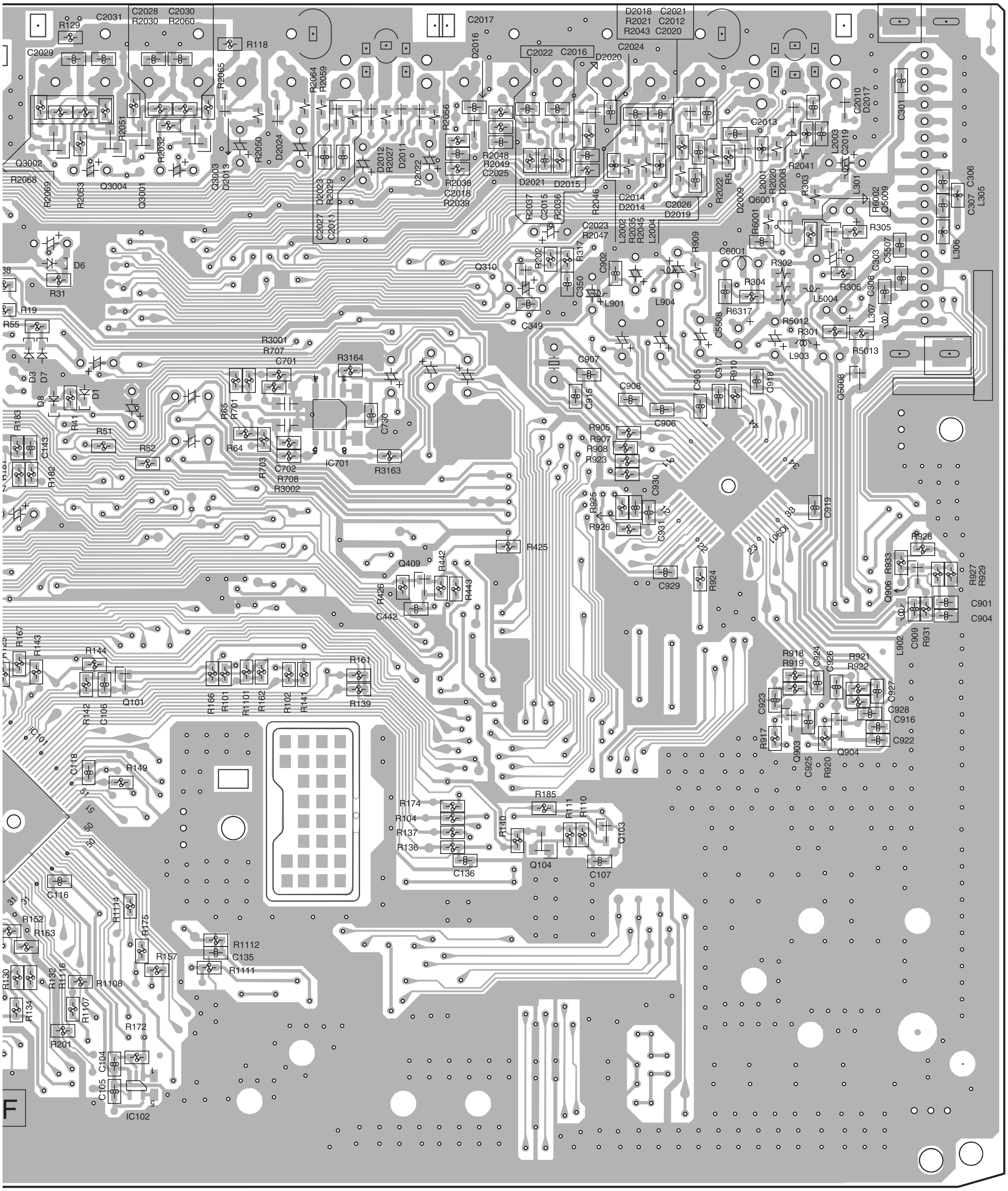
A TUJB ASSY

IC	Q
	Q3002
	Q5006 Q3004 Q3003
	Q4003 Q4002 Q3001 Q6001 Q5009
	Q2001
	Q310
	Q4 Q5008
	Q812 Q108
IC701	
	Q106
	Q107
	Q811
IC901	
	Q810
	Q2 Q409
	Q3011
	Q906
	Q3010
	Q105 Q101
IC101	
	Q904
IC4001	Q903
	Q103
	Q104
	Q303 Q4001
	Q307
	Q102
	Q313
	Q302
	Q301
	Q6008
	Q314
IC102	Q6009


CN303
CN101
LF
IC101
C4017
C4018
GND
FLSTB
FLCLK
FLDATA
GND
IR
V+5F
V+12R1E
FLPCON
KEY1
KEY2
GND
2RIN
GND
2LIN
GND
2VIN
GND
2YIN
GND
SDET2
GND
2CIN

A

SIDE B



A
B
C
D
E
F
R129
C2031
C2028
R2030
C2030
R2060
R118
C2017
D2018
R2021
R2043
C2021
C2012
C2020
C2029
C2022
C2016
C2024
D2020
D2016
R2065
R2064
R2059
R2056
R2051
R2032
R2050
D2024
D2012
R2027
D2011
D2022
R2048
R2049
C2025
R2038
C2018
R2039
D2021
D2015
C2013
C2010
D2017
C301
L2003
C2019
R2041
Q3002
R2068
R2069
R2053
Q3004
Q3001
Q3003
D2013
D2023
R2029
C2027
C2011
R2037
C2015
R2036
R2046
C2014
D2014
C2026
D2019
R2022
R5
D2009
L2001
R2020
D2008
Q6001
R303
L301
R6002
Q5009
C307
C306
L305
R6001
R305
C2023
R2047
L2002
R2035
R2045
L2004
R909
C6001
L306
D6
R31
R19
R55
Q310
R202
R317
C350
C902
L901
L904
R302
R304
R6317
C5508
R5012
R301
L903
L5004
R306
C308
C303
C5507
L307
R5013
C349
D3
D7
D8
D1
R41
R3001
R707
C701
R3164
C907
C915
C908
C906
C905
C917
R910
C918
Q5008
R183
C143
R182
R51
R52
R65
R701
R64
R703
C702
R708
R3002
IC701
C730
R3163
R905
R907
R908
R923
R925
R926
C930
C931
C919
IC901
R425
Q409
R442
R443
R426
C442
C929
R924
R928
R933
R927
R929
Q906
C901
C904
L902
C909
R931
R167
R143
R144
Q101
R142
C106
R166
R101
R1101
R162
R102
R141
R161
R139
R918
R919
C924
C926
R921
R922
C923
C927
C928
C916
C922
R917
Q903
C925
R920
Q904
IC101
C118
R149
R174
R104
R137
R136
C136
R185
R140
R111
R110
Q104
Q103
C107
C116
R152
R163
R1114
R175
R157
R1112
C135
R1111
R130
R132
R1116
R1108
R134
R1107
R201
R172
C104
C105
IC102
F

(VNP2033-C)

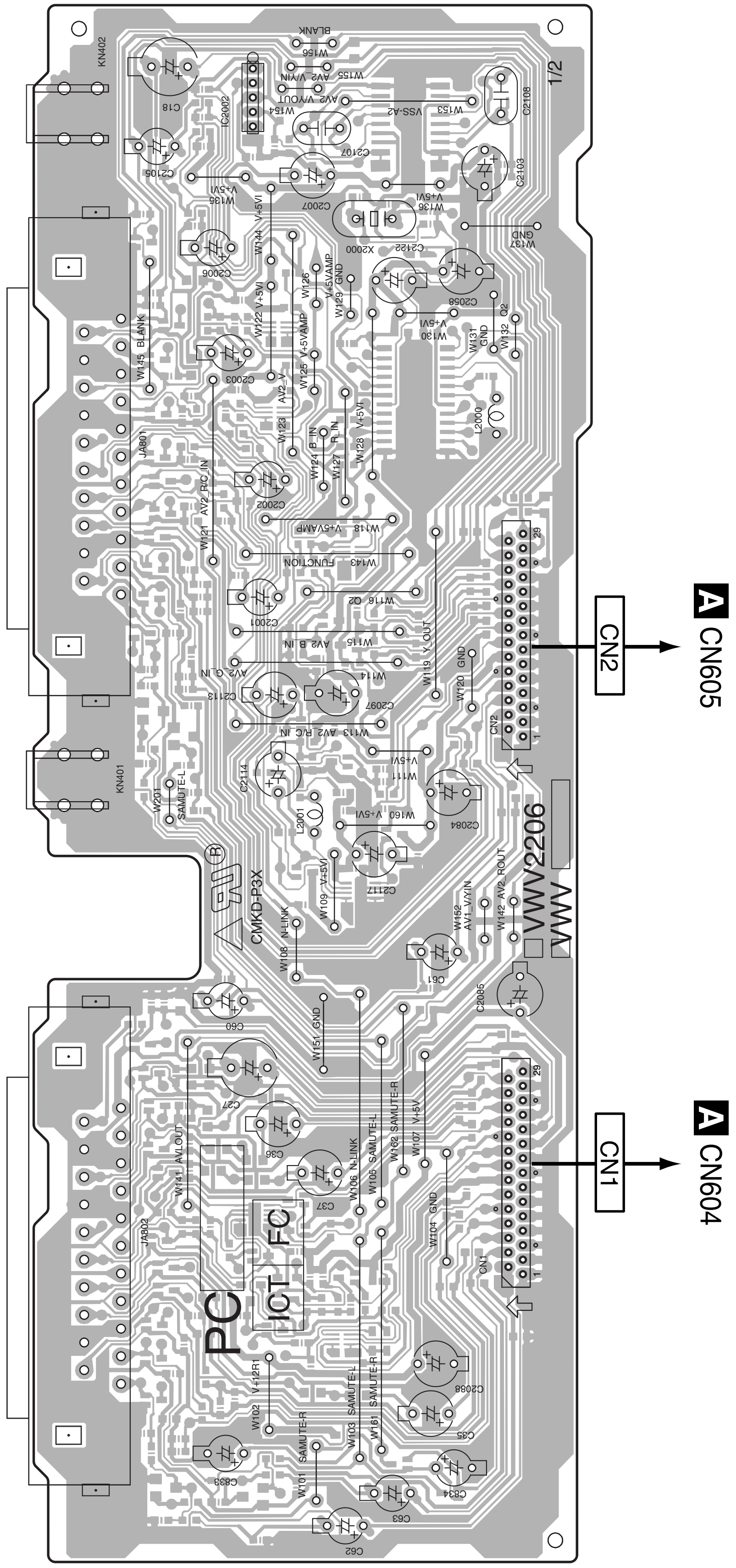
A

4.2 SCRB ASSY

SIDE A

SIDE A

B SCRB ASSY


1/2
A CN605
CN2
A CN604
CN1
VWV2206
CMKD-P3X
PC
ICT
FC
JA801
JA802
KN401
KN402

(VNP2034-B)

Q
IC
IC2002

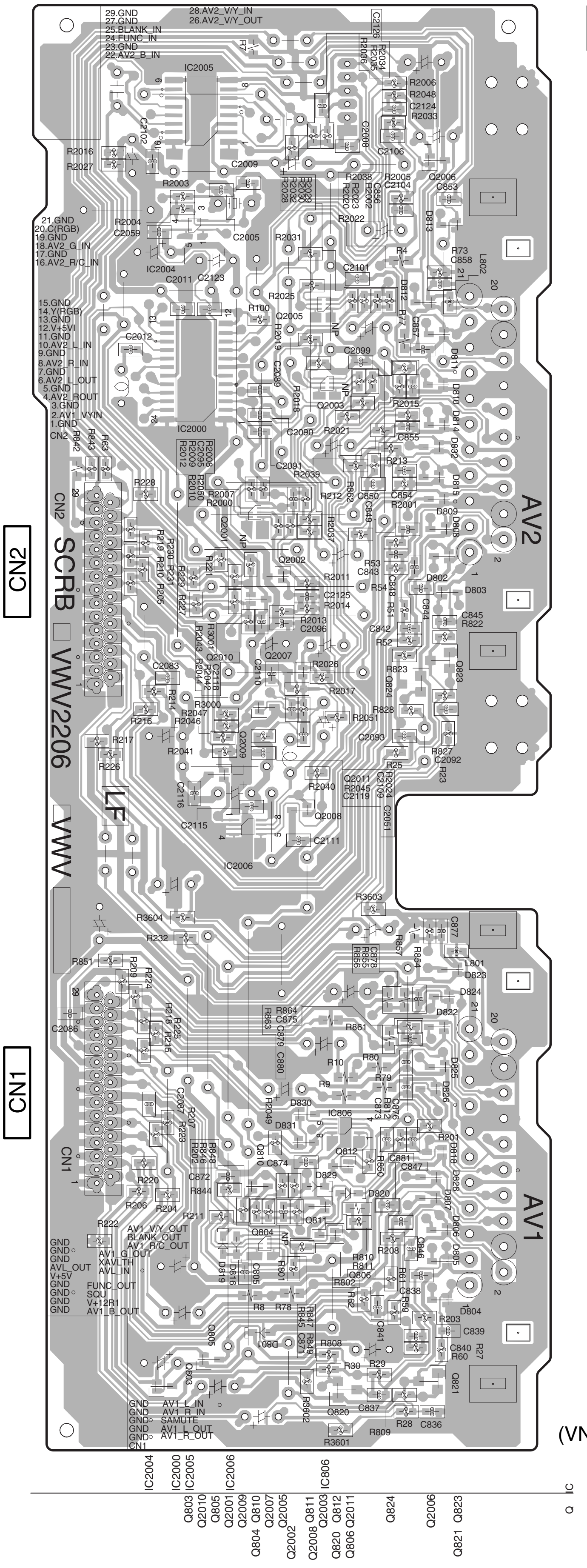
A
B
C
D
E
F

B

B

SIDE B **SIDE B**

B SCRB ASSY


29.GND
27.GND
25.BLANK_IN
24.FUNC_IN
23.GND
22.AV2_B_IN
28.AV2_V/Y_IN
26.AV2_V/Y_OUT
21.GND
20.C(RGB)
19.GND
18.AV2_G_IN
17.GND
16.AV2_R/C_IN
15.GND
14.Y(RGB)
13.GND
12.V+5VI
11.GND
10.AV2_L_IN
9.GND
8.AV2_R_IN
7.GND
6.AV2_L_OUT
5.GND
4.AV2_ROUT
3.GND
2.AV1_VYIN
1.GND
CN2
IC2005
IC2004
IC2000
IC2006
IC806
AV2
AV1
CN2
SCRB
VWV2206
LF
VWV
CN1
GND
GND
GND
AVL_OUT
V+5V
GND
GND
GND
GND
AV1_V/Y_OUT
BLANK_OUT
AV1_R/C_OUT
AV1_G_OUT
XAVLTH
AVL_IN
FUNC_OUT
SQU
V+12R1
AV1_B_OUT
GND
GND
GND
GND
GND
CN1
AV1_L_IN
AV1_R_IN
SAMUTE
AV1_L_OUT
AV1_R_OUT
IC2004
IC2000
IC2005
IC2006
IC806
IC
Q803
Q2010
Q805
Q2001
Q2009
Q810
Q2007
Q2005
Q811
Q2003
Q812
Q2011
Q824
Q2006
Q823
Q
Q804
Q2002
Q2008
Q820
Q806
Q821

(VNP2034-B)

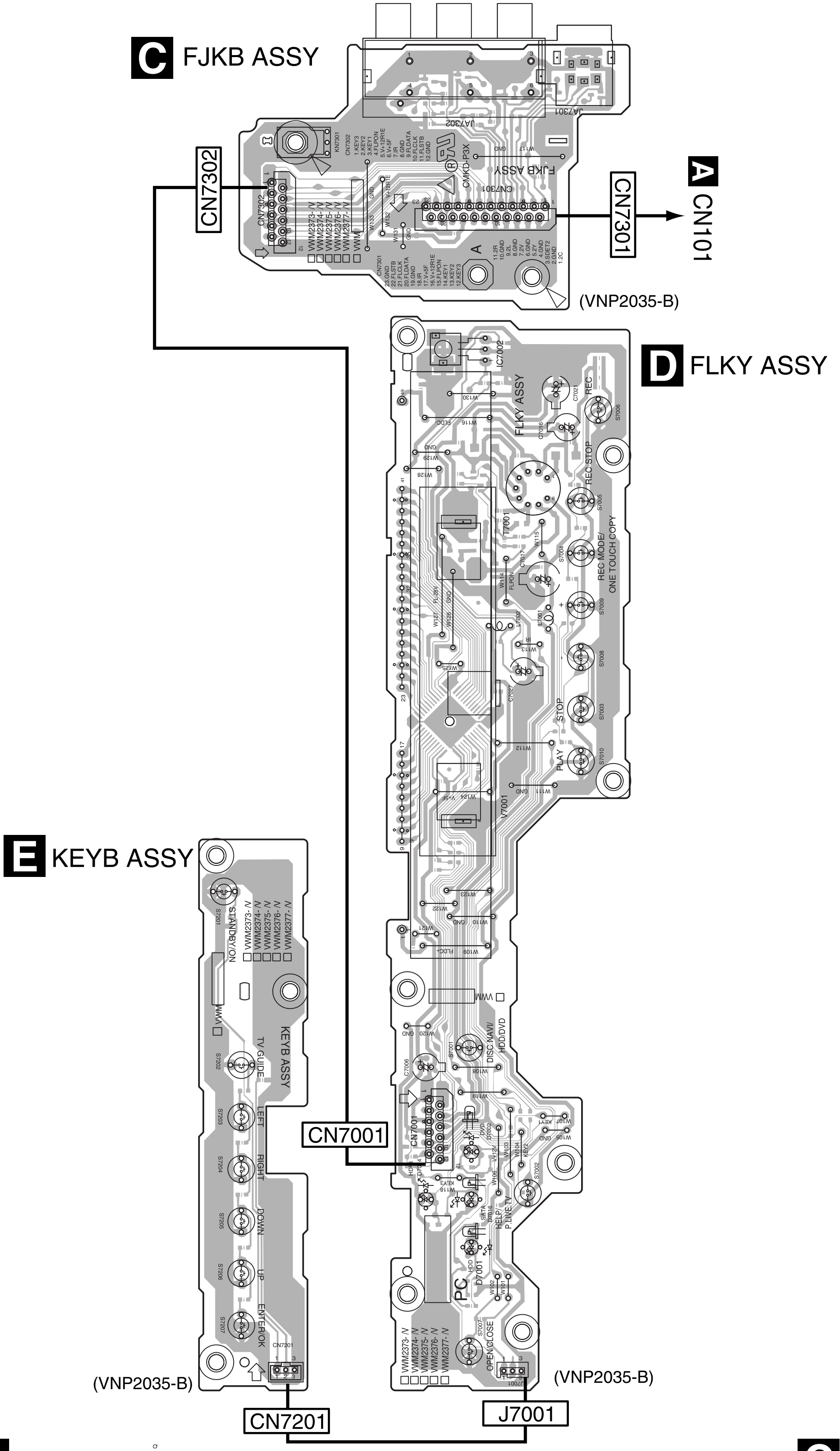
A
B
C
D
E
F

B **B**

4.3 FJKB, FLKY and KEYB ASSYS

SIDE A

SIDE A


C FJKB ASSY
CN7302
CN7301
A CN101
(VNP2035-B)
D FLKY ASSY
E KEYB ASSY
CN7001
CN7201
J7001
(VNP2035-B)
(VNP2035-B)
REC
REC STOP
REC MODE/ ONE TOUCH COPY
STOP
PLAY
DISC NAVI/ HDD/DVD
HELP/ P.LIVE TV
OPEN/CLOSE
STANDBY/ON
TV GUIDE
LEFT
RIGHT
DOWN
UP
ENTER/OK
IC7002
V7001
D7001
JA7301
JA7302

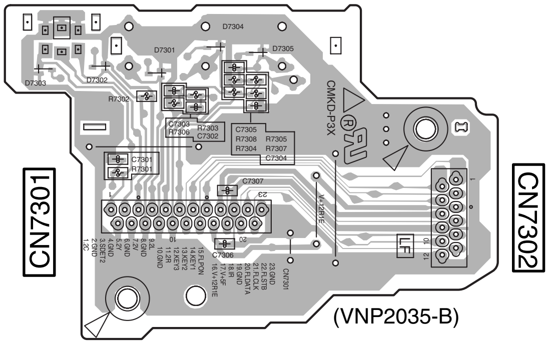
C D E

C D E

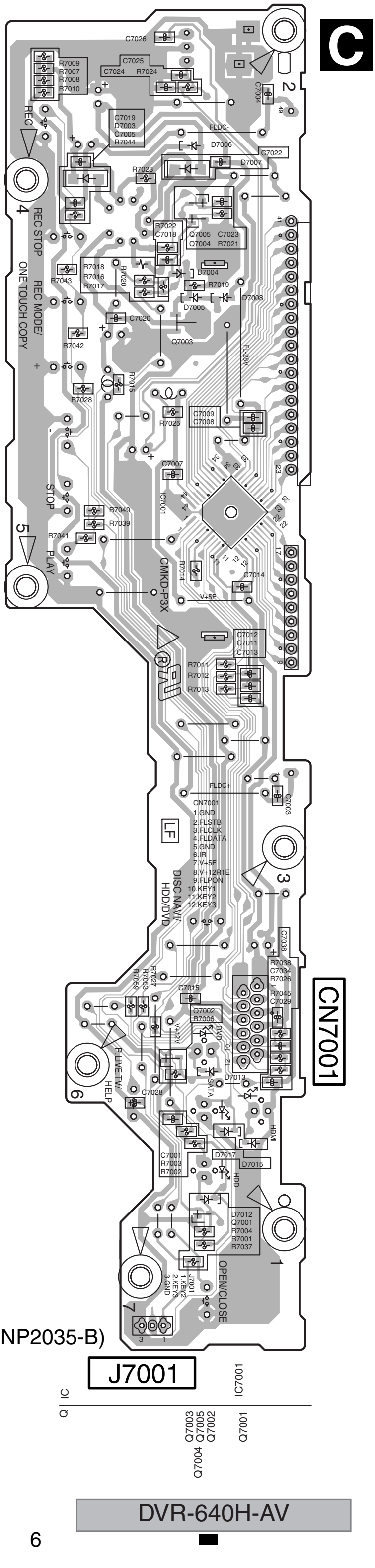
SIDE B

SIDE B

B FJKB ASSY

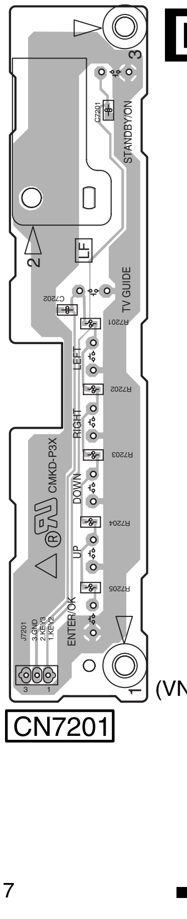

D7304
D7301
D7305
D7303
D7302
R7302
CMKD-P3X
C7303
R7306
R7303
C7302
C7305
R7308
R7305
R7304
R7307
C7304
C7301
R7301
C7307
CN7301
CN7302
V+12R1E
1.2C
2.GND
3.SDET2
4.GND
5.2Y
6.GND
7.2V
8.GND
9.2L
10.GND
11.2R
12.KEY3
13.KEY2
14.KEY1
15.FLPON
16.V+12R1E
17.V+5F
18.IR
19.GND
20.FLDATA
21.FLCLK
22.FLSTB
23.GND
C7306
LF
(VNP2035-B)

C FLKY ASSY


C7026
C7025
C7024
R7024
R7009
R7007
R7008
R7010
REC
C7019
D7003
C7005
R7044
FLDC
D7006
C7022
D7007
R7023
REC STOP
REC MODE/ONE TOUCH COPY
R7022
C7018
Q7005
Q7004
C7023
R7021
R7018
R7016
R7017
R7043
D7004
R7019
D7005
D7008
C7020
Q7003
R7042
R7028
R7015
R7025
C7009
C7008
C7007
IC7001
STOP
R7040
R7039
R7041
PLAY
CMKD-P3X
R7014
C7014
V+5F
C7012
C7011
C7013
R7011
R7012
R7013
FLDC+
CN7001
1.GND
2.FLSTB
3.FLCLK
4.FLDATA
5.GND
6.IR
7.V+5F
8.V+12R1E
9.FLPON
10.KEY1
11.KEY2
12.KEY3
LF
DISC NAVI/HDD/DVD
C7016
R7036
C7004
R7026
R7045
C7029
C7015
Q7002
R7006
D7013
SATA
LIVE TV/HELP
C7028
HDMI
C7001
R7003
R7002
D7017
D7015
HDD
D7012
Q7001
R7004
R7001
R7037
OPEN/CLOSE
J7001
1.KEY2
2.KEY3
3.GND
CN7001
(VNP2035-B)
J7001

Q	IC
Q7003 Q7005 Q7002 Q7004	IC7001 Q7001

D KEYB ASSY


C7201
STANDBY/ON
LF
C7202
TV GUIDE
R7201
LEFT
R7202
RIGHT
R7203
CMKD-P3X
DOWN
R7204
UP
R7205
ENTER/OK
J7201
3.GND
2.KEY3
1.KEY2
(VNP2035-B)
CN7201

A B C D E F

B C D

B C D

4.4 MAIN ASSY

SIDE A

A

B

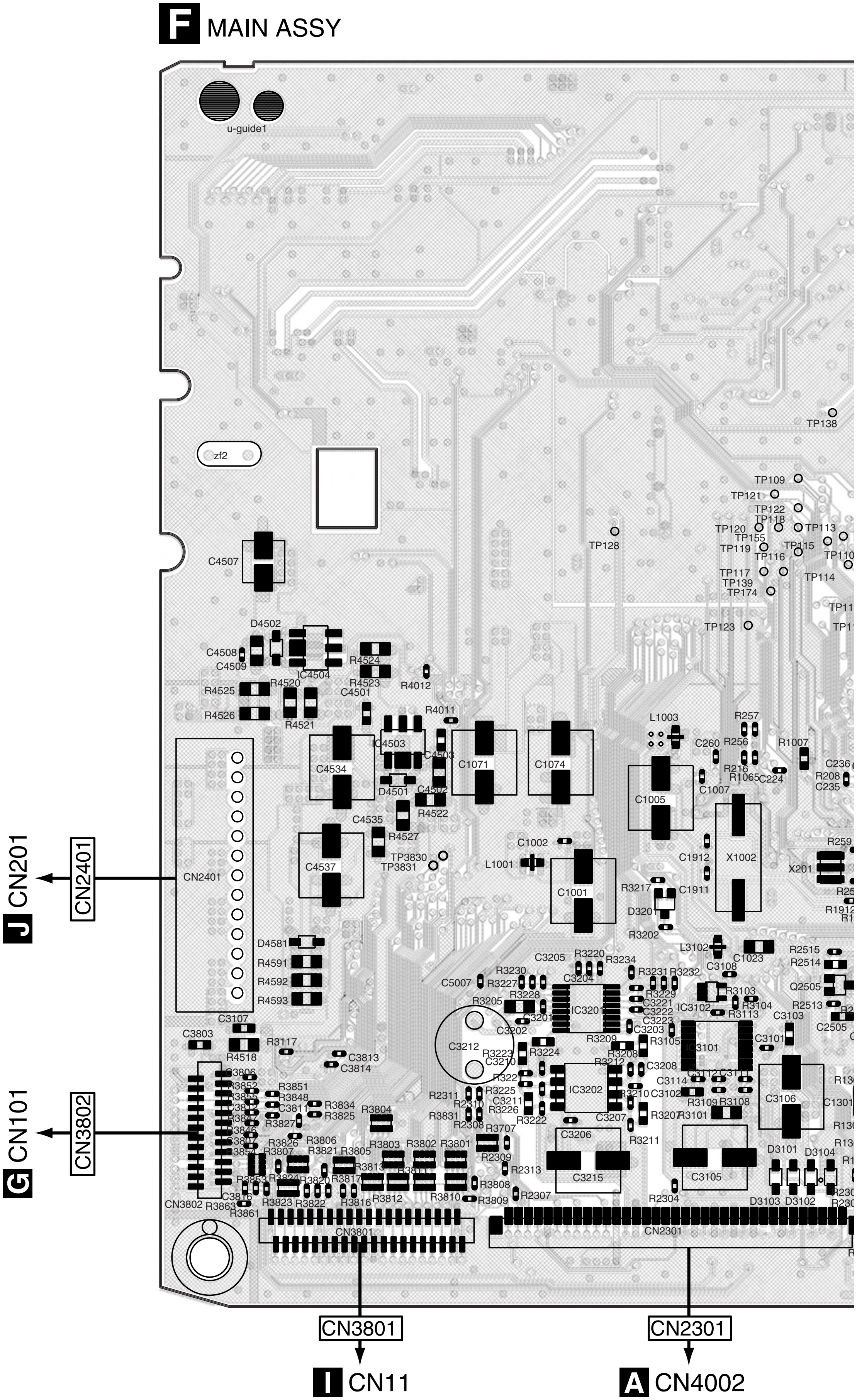
C

D

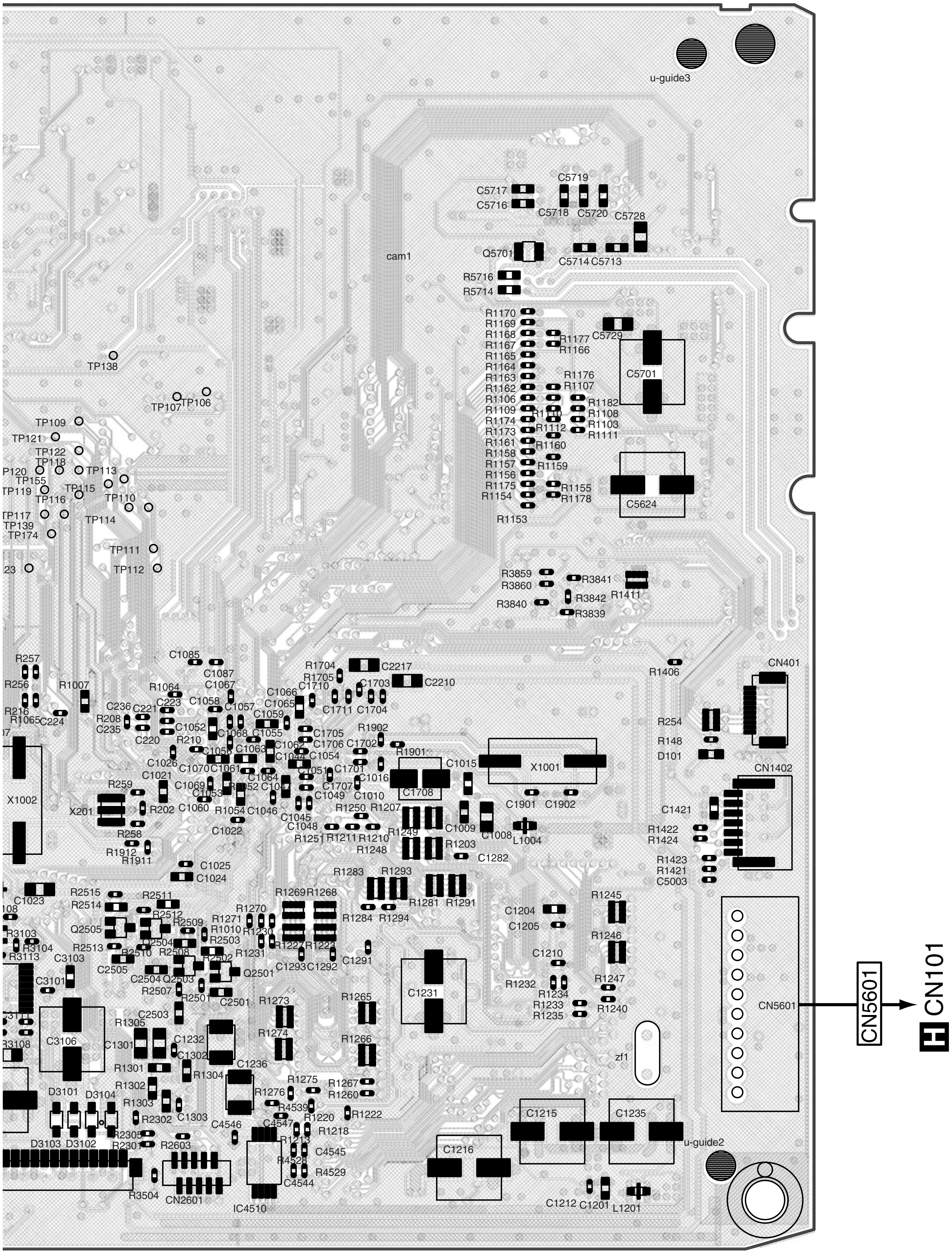
E

F

Q	IC
	IC4504
	IC3201
	IC3202


F MAIN ASSY
u-guide1
zf2
TP138
TP109
TP121
TP122
TP118
TP120
TP113
TP155
TP115
TP119
TP116
TP110
TP128
TP117
TP139
TP114
TP174
TP123
C4507
D4502
C4508
C4509
IC4504
R4524
R4523
R4012
R4525
R4520
C4501
R4526
R4521
R4011
IC4503
C4534
C4503
C1071
C1074
D4501
C4502
R4522
C4535
R4527
C4537
TP3830
TP3831
CN2401
L1003
R257
C260
R256
R1007
R216
R1065
C224
C236
R208
C235
C1005
C1007
C1002
L1001
C1001
C1912
X1002
R259
X201
R3217
C1911
D3201
R3202
R1912
D4581
R4591
R4592
R4593
L3102
C1023
R2515
R2514
C3205
R3220
R3234
R3230
C3204
R3231
R3232
C3108
C5007
R3227
R3228
R3229
R3103
Q2505
R3205
IC3201
C3221
IC3102
R3104
R2513
C3222
R3113
C3103
C3202
C3201
C3223
C3203
C2505
C3107
C3803
R3117
R4518
C3212
R3209
R3105
C3101
R3223
R3224
R3208
C3210
R3212
C3208
C3813
C3814
C3806
R3852
R3851
R3848
C3811
R3834
R3825
R3804
R3827
R3826
R3806
R3807
R3821
R3805
R2311
R2310
R3831
R3225
C3211
R3226
R3222
R3208
R3707
IC3202
R3210
C3102
C3114
C3112
C3111
R3109
R3108
C3106
R3207
R3101
C3207
C3206
R3211
R3803
R3802
R3801
R2309
R2313
R3813
R3811
R3853
R3824
R3820
R3817
R3812
R3810
R3808
R3809
R2307
C3215
C3105
D3101
D3104
R2304
D3103
D3102
C3816
CN3802
R3863
R3861
R3823
R3822
R3816
CN3801
CN2301
CN201
J
CN2401
CN101
G
CN3802
CN3801
I CN11
CN2301
A CN4002

SIDE A


u-guide3
C5717
C5716
C5719
C5718
C5720
C5728
cam1
Q5701
C5714
C5713
R5716
R5714
R1170
R1169
R1168
R1167
R1165
R1164
R1163
R1162
R1106
R1109
R1174
R1173
R1161
R1158
R1157
R1156
R1175
R1154
R1153
R1177
R1166
C5729
R1176
R1107
C5701
R1182
R1108
R1103
R1111
R1110
R1112
R1160
R1159
R1155
R1178
C5624
TP138
TP107
TP106
TP109
TP121
TP122
TP118
TP113
TP120
TP155
TP115
TP119
TP116
TP110
TP117
TP139
TP174
TP114
TP111
TP112
23
R3859
R3860
R3841
R3842
R3840
R3839
R1411
C1085
R1704
C2217
R1705
C2210
C1703
C1710
R257
R256
R1007
R1064
C1087
C1067
C1066
C1065
C1711
C1704
R216
R1065
C224
C236
C221
C223
C1058
C1057
C1059
R208
C235
C1052
C220
R210
C1068
C1055
C1705
C1706
C1702
R1902
R1901
C1062
C1054
C1044
C1056
C1063
C1026
C1070
C1061
C1051
C1701
C1015
X1001
C1021
C1064
C1016
C1708
R259
C1069
C1052
C1047
C1707
C1053
C1049
C1010
C1901
C1902
X1002
X201
R202
C1060
R1054
C1046
R1250
R1207
C1045
C1048
R1249
C1009
C1008
L1004
C1022
R1251
R1211
R1210
R1248
R1203
C1282
R258
R1912
R1911
C1025
C1024
R1283
R1293
R1269
R1268
R1281
R1291
C1023
R2515
R2514
R2511
R2512
R1270
R1284
R1294
108
R2509
R1271
R1010
R1230
R3103
Q2505
R2503
R3104
R2504
R1227
R1223
R3113
R2513
R2510
R2508
R1231
C3103
R2502
C1293
C1292
C1291
Q2501
C2505
C2504
Q2503
C3101
R2507
R2501
C2501
R1273
R1265
C1231
311
C2503
R1305
C3106
R1274
C1232
R1266
3108
C1301
C1302
R1301
R1304
C1236
R1275
R1267
R1302
R1276
R1260
D3101
D3104
R1303
C1303
R4539
R1222
R2302
C4546
C4547
R1220
R1218
R2305
D3103
D3102
R2301
R2603
R1213
R4528
C4545
R4529
C4544
R3504
CN2601
IC4510
CN401
R1406
R254
R148
D101
CN1402
C1421
R1422
R1424
R1423
R1421
C5003
R1245
C1204
C1205
R1246
C1210
R1247
R1232
R1234
R1233
R1240
R1235
CN5601
zf1
C1215
C1235
C1216
u-guide2
C1212
C1201
L1201
CN5601
H CN101

(VNP2038-A)

02

F

1 2 3 4

SIDE B

A

F MAIN ASSY

Q	IC
	IC5702
	IC501
	IC5701
	IC102
	IC5621
	IC101 IC1102
	IC5631
Q1111	IC4512 IC4507
	IC3802
Q1811	
	IC4511
Q1801	IC1001
	IC4531
Q2502	
	IC3103
Q3712	IC1201
Q3711	
Q4561	IC2201 IC1221 IC3701 IC1301
Q3501	IC2202

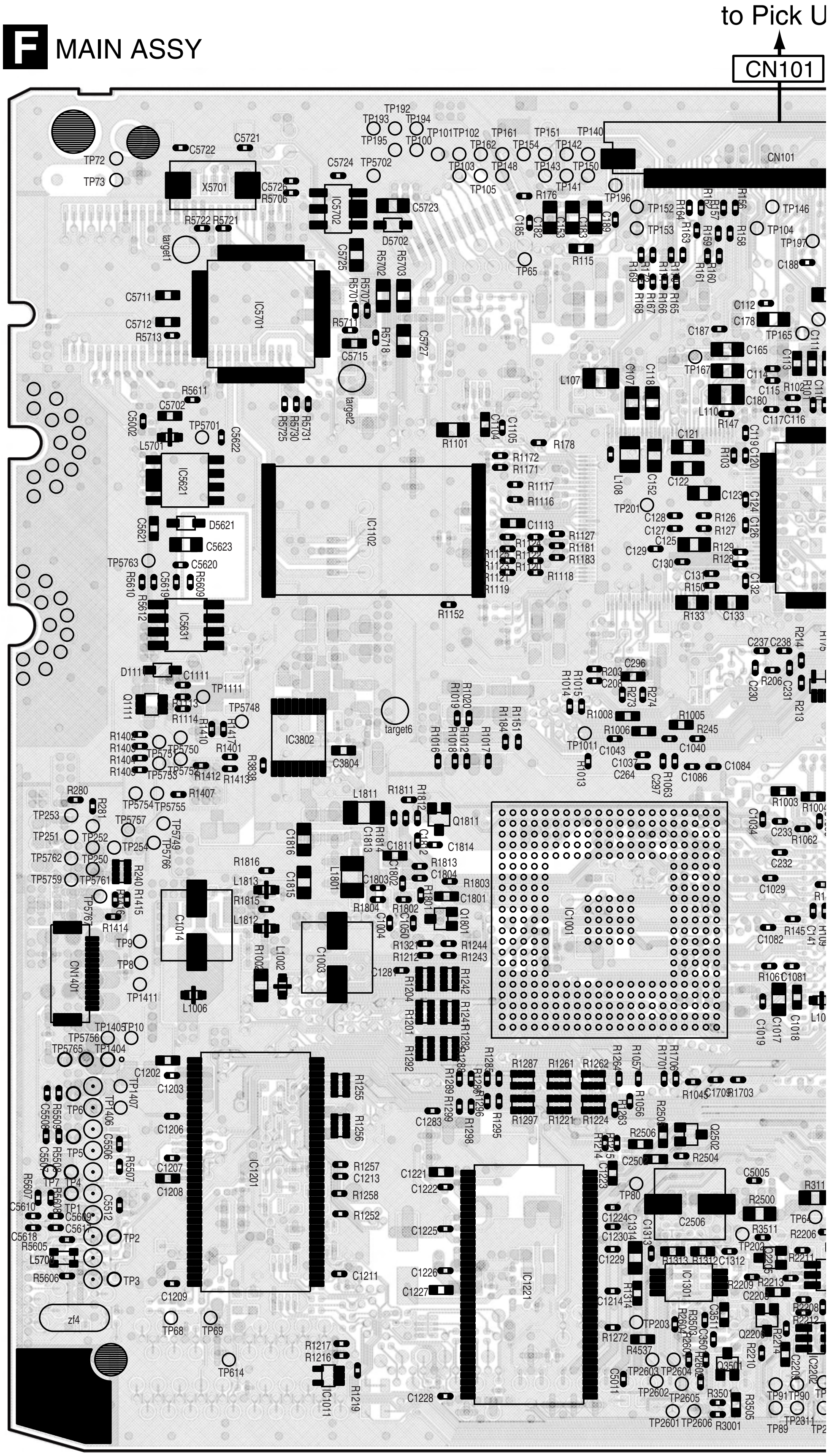
B

C

D

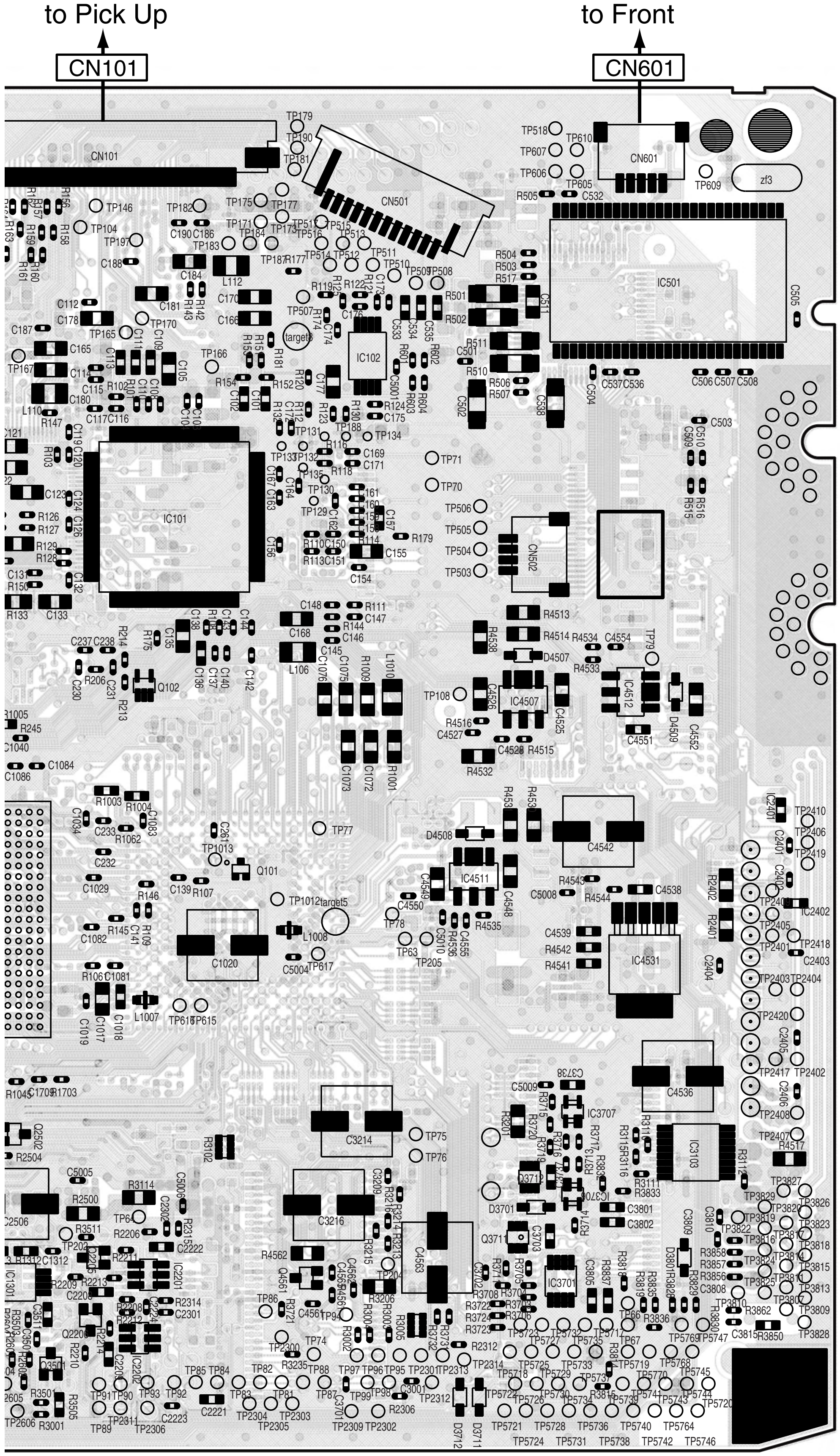
E

F



to Pick U
CN101
X5701
IC5702
IC5701
D5702
target1
target2
target6
IC5621
D5621
IC1102
IC5631
Q1111
IC3802
L1811
Q1811
IC1001
L1801
C1014
C1003
CN1401
L1006
IC1201
IC1221
IC1301
IC1011
C2506
Q2502
Q3501
L107
L108
L110
TP72
TP73
TP614
zf4

SIDE B


to Pick Up
CN101
to Front
CN601
CN501
IC501
IC102
IC101
CN502
IC4507
IC4512
IC4511
IC4531
C4542
C4536
C1020
C3214
C3216
C4563
IC3707
IC3103
IC3701
IC2201
IC2202
zf3
target5

(VNP2038-B)

A
B
C
D
E
F

4.5 DVJB ASSY (DVR-640H-AV Only)

SIDE A

SIDE A

A

B

C

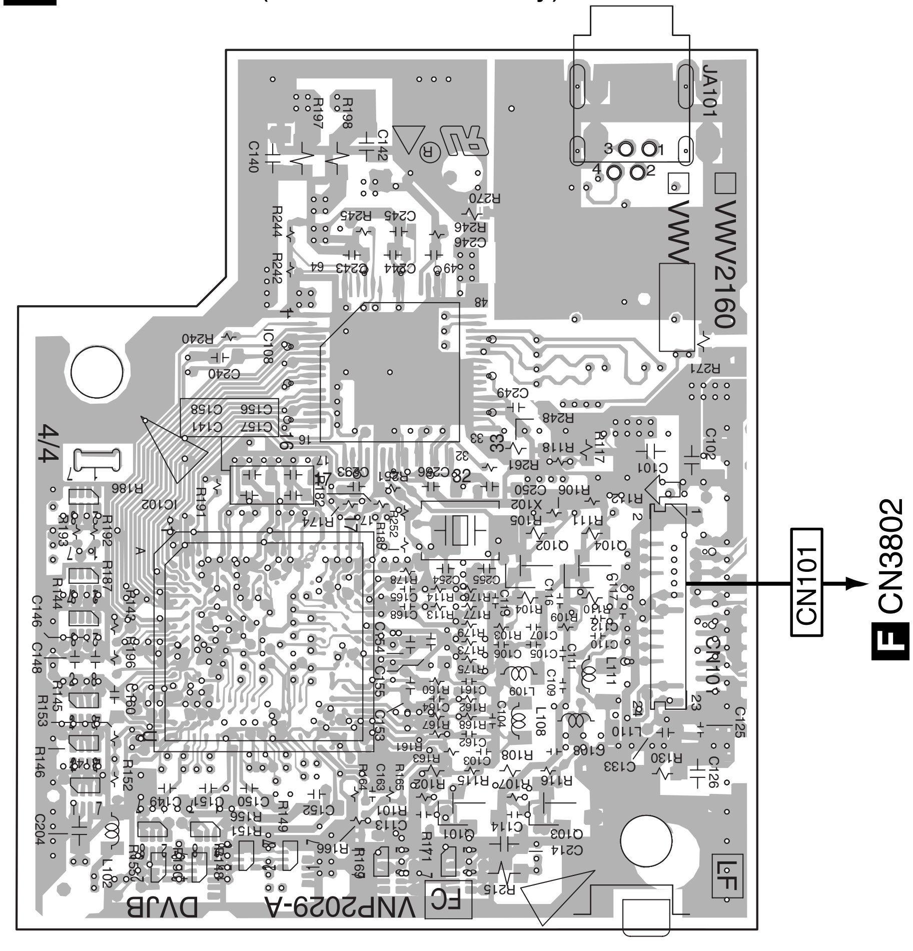
D

E

F

IC	Q
IC108	
IC102	Q102 Q104
	Q101 Q103

G DVJB ASSY (DVR-640H-AV Only)


JA101
VWV2160
IC108
IC102
X102
Q101
Q102
Q103
Q104
CN101
CN101
F CN3802
4/4
L110
L111
L108
L102
R270
R271
R240
R242
R244
R245
R246
R248
R261
C140
C142
C240
C245
C246
C249
C250
C102
C101
C125
C126
C133
C214
R130
R215
FC
VNP2029-A
DVJB
LF

(VNP2029-A)

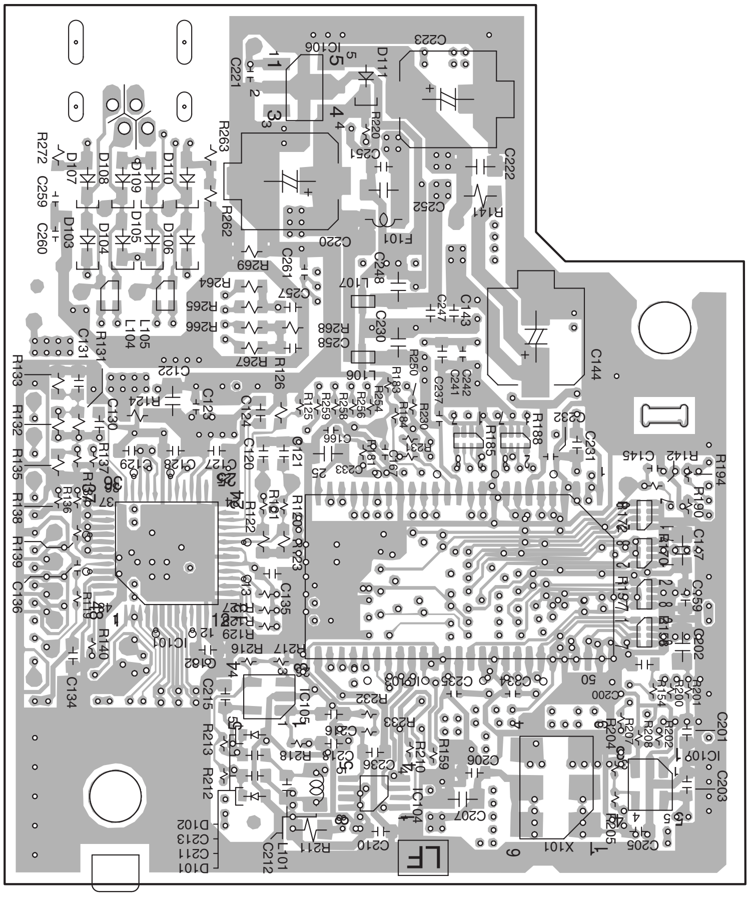
SIDE B **SIDE B**

A

G DVJB ASSY (DVR-640H-AV Only)

B

IC	Q
IC106	
IC101	
IC103	
IC105	
IC107	
IC104	


IC106
C223
D111
C221
R263
R272
D107
D108
D109
D110
C259
C260
D103
D104
D105
D106
R262
C220
C222
R141
C252
F101
C248
L107
R269
C261
C257
R264
R265
R266
R268
C258
C230
L106
R267
R126
C143
C247
C144
L105
L104
R131
C131
C122
R133
R132
R135
R138
R139
C136
C134
C130
R124
C123
C124
C120
C121
R185
R188
C232
C231
C145
R142
R194
C107
C201
C203
C205
X101
R205
C207
IC104
C210
R211
L101
C212
D101
C211
C213
D102
R212
R213
C215
IC105
R218
R159
C206
R210
LF
IC101

(VNP2029-A)

C

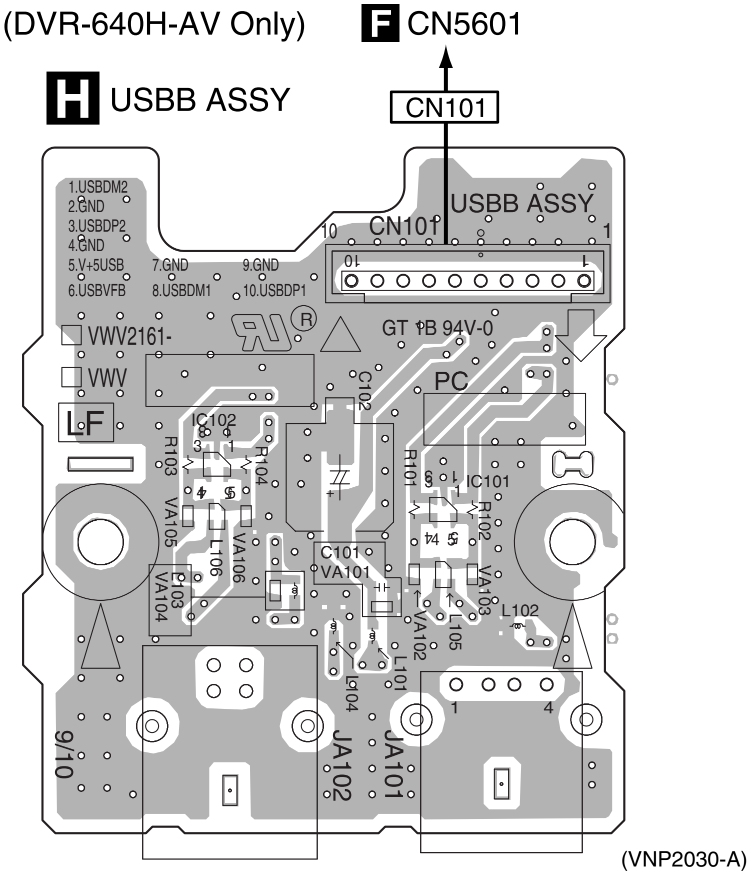
D

E

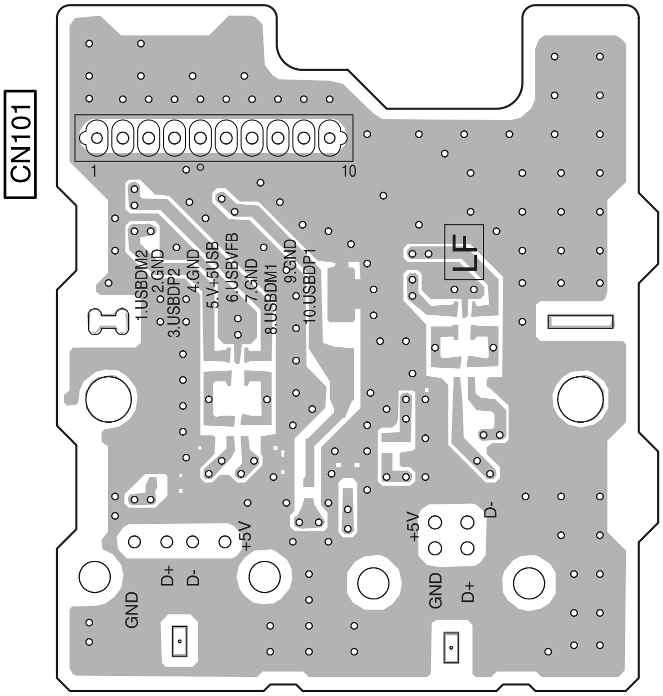
F

4.6 USBB ASSY (DVR-640H-AV Only)

SIDE A **SIDE A**


(DVR-640H-AV Only)
F CN5601
H USBB ASSY
CN101
USBB ASSY
CN101
10
1
1.USBDM2
2.GND
3.USBDP2
4.GND
5.V+5USB
6.USBVFB
7.GND
8.USBDM1
9.GND
10.USBDP1
VWV2161-
VWV
LF
GT PB 94V-0
PC
C102
IC102
R103
R104
R101
IC101
R102
VA105
VA106
L106
C103
VA104
C101
VA101
VA102
VA103
L105
L102
L101
L104
JA102
JA101
9/10
1
4
(VNP2030-A)

H USBB ASSY (DVR-640H-AV Only)

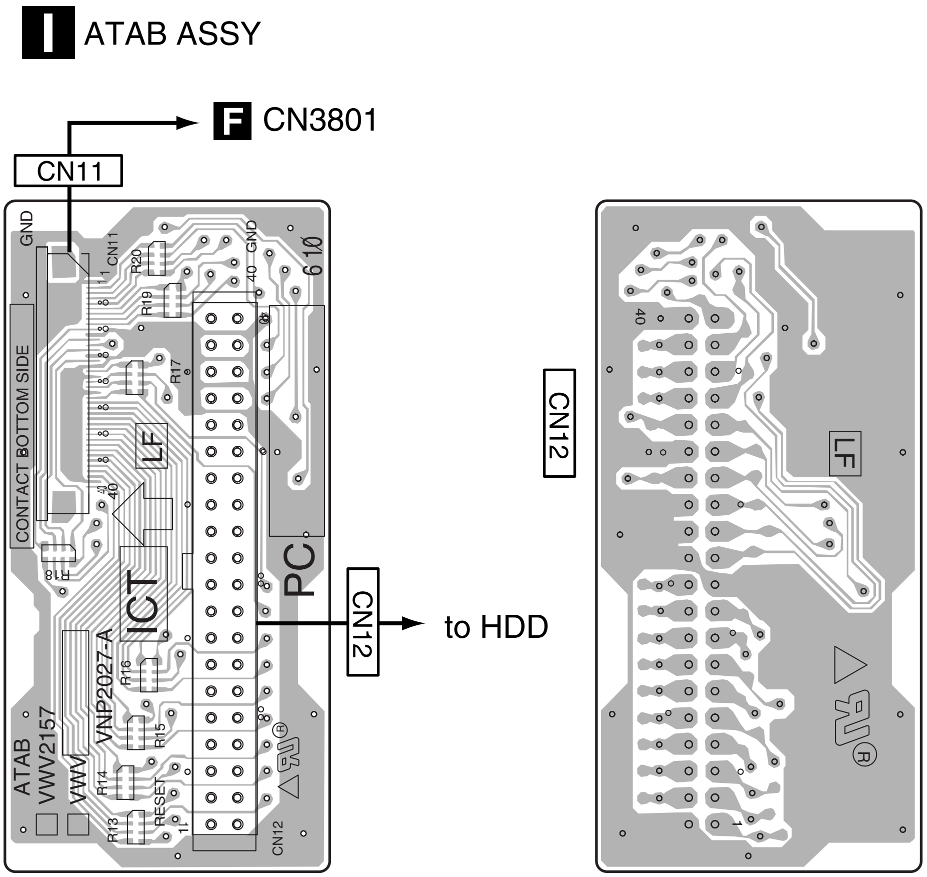

CN101
1
10
1.USBDM2
2.GND
3.USBDP2
4.GND
5.V+5USB
6.USBVFB
7.GND
8.USBDM1
9.GND
10.USBDP1
LF
+5V
D+
D-
GND
+5V
D-
GND
D+

(VNP2030-A)

4.7 ATAB ASSY

SIDE A

SIDE B


I
ATAB ASSY
F
CN3801
CN11
CN12
to HDD
GND
CN11
R20
R19
R17
40
GND
CONTACT BOTTOM SIDE
LF
40
R18
ICT
PC
VNP2027-A
R16
R15
R14
R13
RESET
1
ATAB
VWV2157
VWV
CN12
CN12
40
LF
1

(VNP2027-B)

SIDE A

(VNP2027-B)

SIDE B

A

B

C

D

E

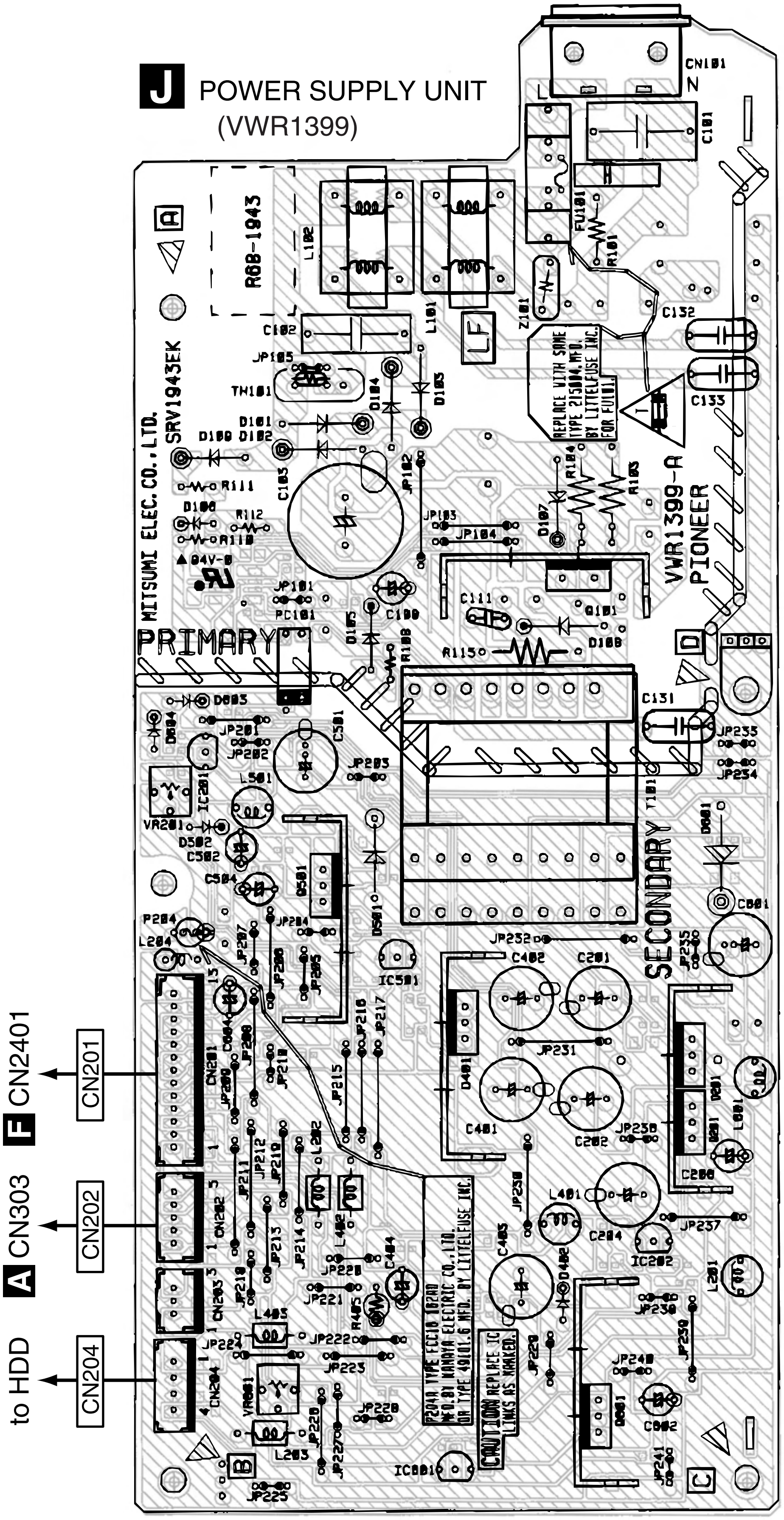
F

4.8 POWER SUPPLY UNIT

SIDE A

SIDE A

J POWER SUPPLY UNIT
(VWR1399)

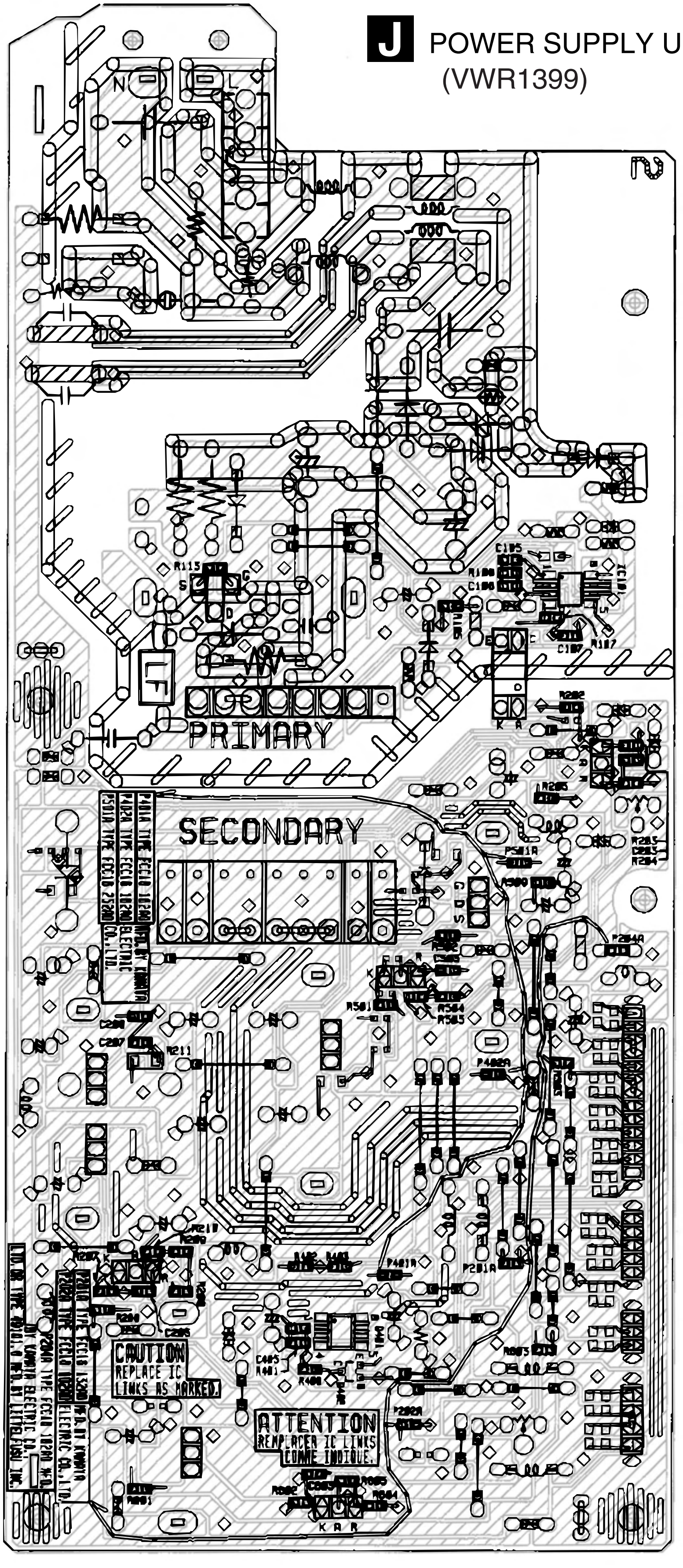

CN101
N
L
C101
FU101
R101
L102
L101
R6B-1943
Z101
C132
C133
C102
JP105
TH101
D104
D105
LF
REPLACE WITH SAME TYPE 215004.MFD. BY LITTELFUSE INC. FOR FU101
D101
D100 D102
C103
JP102
R104
R105
R111
D106
R112
R110
94V-0
JP103
JP104
D107
VWR1399-A
PIONEER
MITSUMI ELEC.CO.,LTD.
SRV1943EK
JP101
PC101
C109
C111
Q101
D103
D108
R108
R115
PRIMARY
C131
D503
D504
JP201
JP202
C501
JP235
JP234
JP203
IC201
L501
T101
VR201
D502
C502
Q501
D601
C504
D501
C601
SECONDARY
P204
L204
JP204
JP207
JP206
JP205
IC501
JP232
C402
C201
JP235
CN201
C604
JP208
JP209
JP210
JP216
JP217
JP215
D401
JP231
Q601
L601
C401
C202
JP238
JP211
JP212
JP219
L202
C200
CN202
JP213
JP214
L402
C403
JP230
L401
C204
JP237
IC202
JP218
JP220
C404
D402
L201
CN203
JP221
R405
JP239
L403
JP222
JP224
JP223
JP229
JP240
JP250
CN204
VR601
P204A TYPE FCC16 1G2A0 MFD.BY NANAYA ELECTRIC CO.,LTD OR TYPE 49101.6 MFD. BY LITTELFUSE INC.
CAUTION REPLACE IC LINKS AS MARKED.
D601
C602
JP228
JP226
JP227
L203
IC801
JP241
JP225
B
C
D
A
CN2401
F
CN201
CN303
A
CN202
to HDD
CN204

J

J

SIDE B **SIDE B**

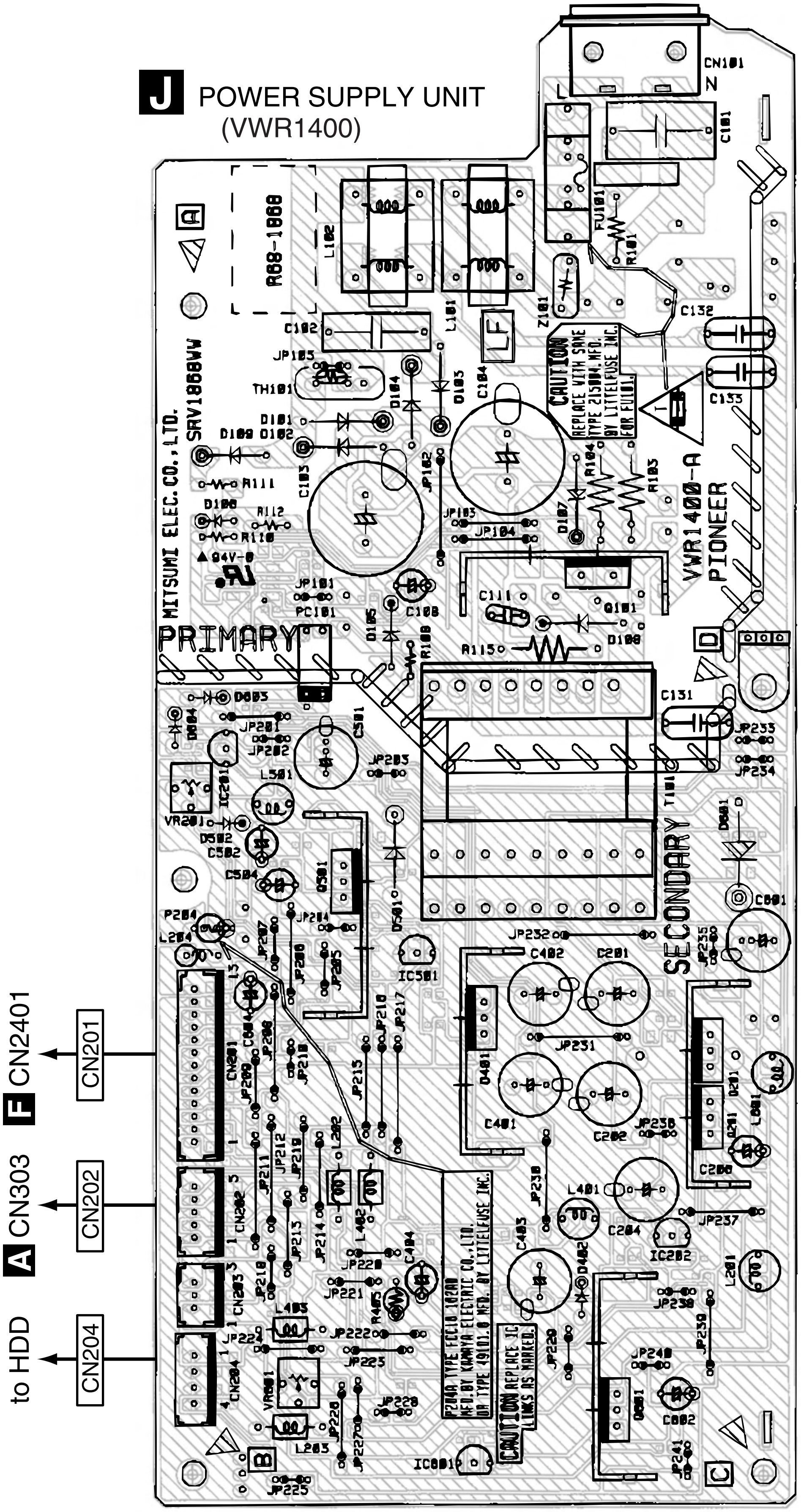
J POWER SUPPLY UNIT
(VWR1399)


N
L
PRIMARY
SECONDARY
LF
R115
C105
R108
C108
IC101
C107
R107
R202
R205
R203
R204
C203
P501A
R509
P204A
R501
R504
R505
C206
C207
R211
P402A
R210
R209
R207
R208
C205
P401A
P201A
R402
R403
R401
C405
R400
D401
R603
P202A
R602
C603
R605
R604
R601
K A R
P401A TYPE FCC10 1G2MD
P402A TYPE FCC10 1G2MD
P501A TYPE FCC10 2S2MD
MFD. BY KAMAYA ELECTRIC CO., LTD.
P201A TYPE FCC10 1S2MD
P202A TYPE FCC10 1G2MD MFD. BY KAMAYA ELECTRIC CO., LTD.
P204A TYPE FCC10 1G2MD MFD. BY KAMAYA ELECTRIC CO., LTD. OR TYPE 491.01.0 MFD. BY LITTELFUSE INC.
CAUTION
REPLACE IC
LINKS AS MARKED.
ATTENTION
REMPLACER IC LINKS
COMME INDIQUE.

J **J**

SIDE A **SIDE A**

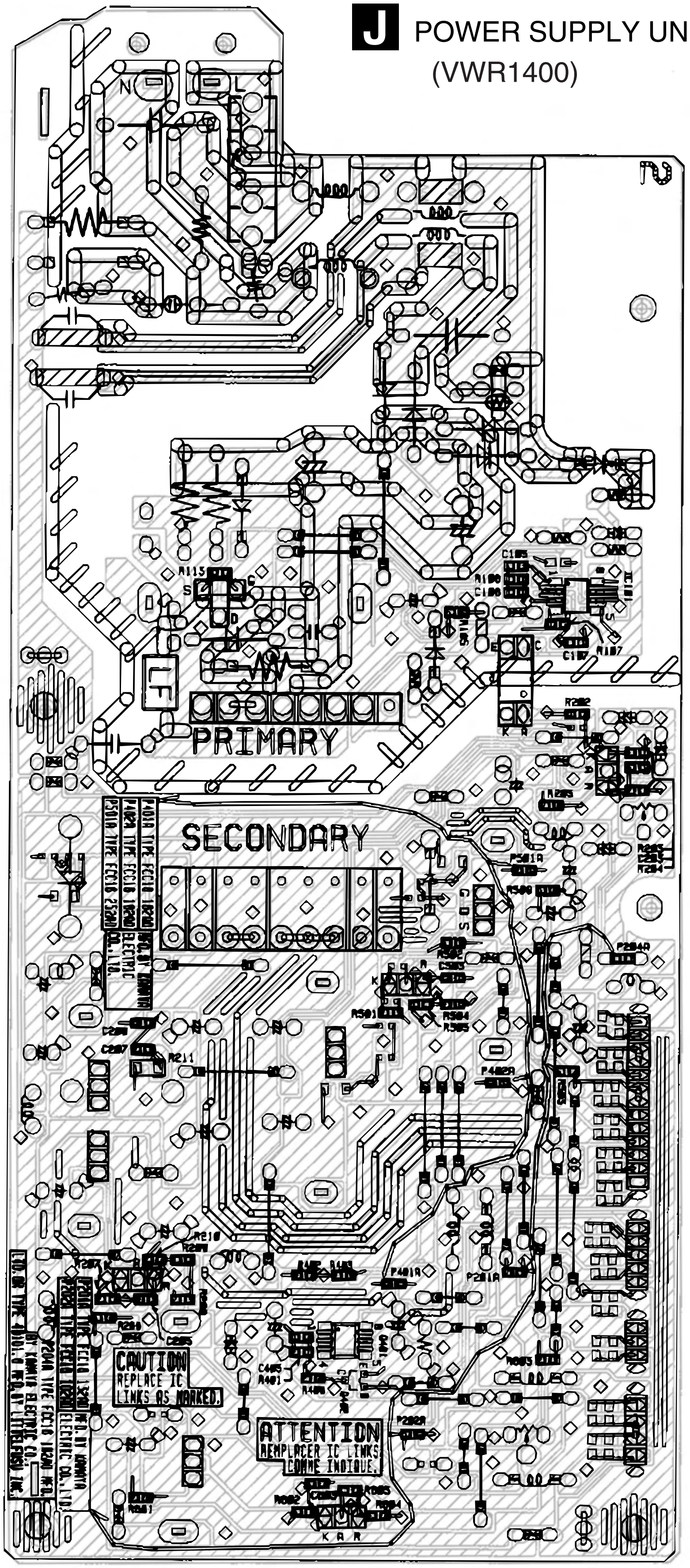
J POWER SUPPLY UNIT
(VWR1400)


CN101
N
L
C101
FU101
R101
R68-1068
L102
L101
LF
Z101
C132
C133
C102
JP103
TH101
D104
D103
C104
CAUTION REPLACE WITH SAME TYPE 215004.MFD. BY LITTELFUSE INC. FOR FU101.
D101
D102
D109
C103
JP102
R104
R103
SRV1068WW
MITSUMI ELEC.CO.,LTD.
R111
D108
R112
R110
94V-0
JP105
JP104
D107
VWR1400-A
PIONEER
JP101
PC101
C108
C111
Q101
D105
D106
R108
R115
D109
PRIMARY
D
C131
D503
D504
JP201
JP202
C501
JP233
JP234
IC201
L501
JP203
T101
VR201
D502
C502
D601
C504
Q501
SECONDARY
C601
P204
L204
JP204
JP232
JP235
JP207
JP208
JP205
D501
IC501
C402
C201
CN201
C604
JP206
JP218
JP210
JP217
D401
JP231
C401
C202
JP236
JP209
JP215
Q201
L601
JP211
JP212
JP219
L202
C203
CN202
JP213
JP214
L402
JP230
L401
C204
JP237
C403
IC202
JP220
C404
D402
L201
CN203
L403
JP221
R405
JP239
JP224
JP222
JP223
P204A TYPE FCC10 102AN MFD. BY KAMAYA ELECTRIC CO.,LTD. OR TYPE 49101.0 MFD. BY LITTELFUSE INC.
JP220
JP250
JP240
CN204
VR601
JP226
JP228
CAUTION REPLACE IC LINKS AS MARKED.
D681
C602
L203
JP227
IC601
JP241
B
C
JP225
A
F CN2401
A CN303
to HDD

J J

SIDE B **SIDE B**

J POWER SUPPLY UNIT
(VWR1400)


N
L
R115
S
G
D
LF
PRIMARY
C105
R190
C106
C107
R107
R202
R205
SECONDARY
P101A TYPE FCC10 1R0AO
P402A TYPE FCC10 1R0AO
P501A TYPE FCC16 2S0AO
MFD. BY KAMAYA ELECTRIC CO., LTD.
P501A
R500
G
D
S
P204A
R501
R504
R505
C206
C207
R211
P402A
R210
R207
R209
R402
R403
P401A
P201A
C205
CAUTION
REPLACE IC LINKS AS MARKED.
C405
R401
R406
R603
P202A
ATTENTION
REMPLACER IC LINKS COMME INDIQUE.
R602
R601
R604
K A R

5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*

● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56×10^{1} → 561 .... RD1/4PU561J
47k Ω → 47×10^{3} → 473 .... RD1/4PU473J
0.5 Ω → R50 .... RN2HR50K
1 Ω → 1R0 .... RS1P1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^{1} → 5621 .... RN1/4PC5621F

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	DVR-640H-AV	DVR-540H-S
NSP	1..TUJB ASSY	VWM2371	VWM2370
NSP	2..TUJB AI	VWV2169	VWV2169
	3..TUJB ASSY (for Service)	VXX3109	VXX3108
	1..SCRB ASSY	VWV2206	VWV2206
NSP	1..FLKB ASSY	VWM2377	VWM2377
NSP	2..FLKB AI	VWG2566	VWG2566
	3..FLKY ASSY (for Service)	VXX3111	VXX3111
	3..KEYB ASSY (for Service)	VXX3112	VXX3112
	3..FJKB ASSY (for Service)	VXX3113	VXX3113
	1..MAIN ASSY (for Service)	VXX3157	VXX3159
	1..DVJB ASSY	VWV2160	Not used
	1..USBB ASSY	VWV2161	Not used
	1..ATAB ASSY (for Service)	VXX3140	VXX3140
⚠	1..POWER SUPPLY UNIT	VWR1339	VWR1339

A TUJB ASSY

VXX3109 and VXX3108 are constructed the same except for the following :

Mark	Symbol and Description	VXX3109	VXX3108
	R153	Not used	RD1/4PU393J
	R154	RD1/4PU153J	RD1/4PU682J

A TUJB ASSY (DVR-640H-AV)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC701		BA4560RF
	IC4001		BD4846G
	IC102		BU4220G
⚠	IC1001, IC5001		CEK1278
	IC100		HA118326APFR
	IC2002		MM1503XN
	IC901		MSP3417G
	IC801		PDF015A
	IC101		PMC006A8
⚠	Q301, Q302, Q811, Q831		2SA1036K
	Q4002, Q401, Q410, Q5008, Q5009		2SA1576A
	Q903, Q904		2SA1576A
	Q303, Q6009, Q812, Q832		2SC2411K
	Q102, Q107, Q108, Q310, Q4003		2SC4081
	Q409, Q5011, Q906		2SC4081
	Q5010		2SC5876
	Q3001, Q3002, Q3010, Q4, Q5006		2SD2114K
	Q3210		DTA124EUA
	Q106		DTA143EUA
	Q101		DTC114TUA
	Q2, Q307, Q313, Q3211, Q4001		DTC124EUA
	Q810, Q830		DTC124EUA
	Q5007		HN1A01FU
	Q6008		RN4903
	Q105, Q3011		UMD2N
	Q6001		UMF21N
	Q306		UMF23N
	D106		1SR154-400
	D101, D107, D3201, D3202		1SS355
	D4001, D4002, D4005, D5004, D5006		1SS355
	D811		1SS355
	D105		DAP202U
	D1		UDZS11(B)
	D301		UDZS15(B)
	D830		UDZS3R9(B)
	D2		UDZS6R8(B)

Mark	No.	Description	Part No.
	D810		UDZS9R1(B)
	D2011, D2012		UMZ6R8N

COILS AND FILTERS

Mark	No.	Description	Part No.
	L5005	RADIAL INDUCTOR	ATH1109
	L305, L306	INDUCTOR	CTF1306
	L2005	INDUCTOR	CTF1388
	L301, L302, L5004	INDUCTOR	CTF1399
	L901, L904	INDUCTOR	CTF1399
	L101		LAU470J
	L902		LCYA100J2520
	L903		LCYA101J2520
	L501		LCYA120J2520
	L401, L403		LCYA150J2520
	L402, L404		LCYA180J2520
	L5003		LRCA331J

CAPACITORS

Mark	No.	Description	Part No.
	C113, C114, C141		CCSRCH100D50
	C4011, C4012, C68, C69, C909		CCSRCH101J50
	C117, C129		CCSRCH120J50
	C306, C307, C405, C411		CCSRCH330J50
	C4009		CCSRCH331J50
	C2028, C2029, C5013		CCSRCH471J50
	C906, C908		CCSRCH560J50
	C925, C928		CCSRCH561J50
	C408, C413		CCSRCH680J50
	C404, C410		CCSRCH7R0D50
	C406, C412		CCSRCH820J50
	C403, C409, C907, C915		CCSRCJ3R0C50
	C937		CEAL100M50
	C938		CEAL3R3M50
	C66, C67		CEANP4R7M50
	C14, C341, C711, C712, C939		CEAT100M50
	C139, C23, C25, C39, C44		CEAT101M10
	C6649, C812, C813, C832, C833		CEAT101M10
	C3111, C319, C323, C351		CEAT101M16
	C130, C2035-C2037, C313, C5506		CEAT102M6R3
	C2032, C4		CEAT1R0M50
	C111, C310		CEAT220M25
	C3128		CEAT221M6R3
	C119		CEAT2R2M50
	C2038, C2039, C5015		CEAT470M16
	C128, C2033, C2034		CEAT471M6R3
	C76		CEAT4R7M50
	C5004		CKSQYF105Z50
	C2005, C2011, C901, C923, C926		CKSRYB103K50
	C105, C12, C17, C20, C30		CKSRYB104K16
	C49, C54, C6428, C8, C905		CKSRYB104K16
	C919		CKSRYB104K16
	C10, C11, C13, C19, C2		CKSRYB105K10
	C2109, C26, C36, C40, C4003		CKSRYB105K10
	C41, C42, C45-C48, C7		CKSRYB105K10
	C72, C73, C77-C82		CKSRYB105K10
	C301, C5507		CKSRYB222K50
	C924, C927		CKSRYB392K50
	C101, C102, C104, C115		CKSRYF104Z25
	C135, C136, C18, C21, C22		CKSRYF104Z25
	C24, C3, C350, C38		CKSRYF104Z25
	C4001, C4002, C4004, C4016, C407		CKSRYF104Z25
	C443, C5005, C5010, C5014, C6		CKSRYF104Z25
	C70, C71, C730, C74, C75		CKSRYF104Z25
	C810, C811, C820, C830, C831		CKSRYF104Z25
	C917, C918		CKSRYF104Z25
	C142, C144, C43, C5, C929		CKSRYF105Z10
	C701, C702		CKSYB106K10

RESISTORS

Mark	No.	Description	Part No.
	R156		RD1/4PU153J
	R155		RD1/4PU393J
	R701, R703		RN1/16SE1002D
	R707, R708		RN1/16SE8201D
	R313, R824, R909		RS1/10S0R0J
	R302, R304		RS1/10S100J
	R303, R5012		RS1/10S120J
	R311		RS1/10S471J
	R2003, R2006, R2011, R2015, R2023		RS1/10S75R0F
	R2025, R2027, R2029, R2050		RS1/10S75R0F
	R5007		RS1/16S1203F
	R2016, R2017		RS1/16S1800F
	R402, R405		RS1/16S2700F
	R5006		RS1/16S2702F
	R2070		RS1/16S3304F
	R177		RS1/16S7500F
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	U301	TV TUNER PACK	VXF1106
	X101 (15.0 MHz)	CRYSTAL	CSS1653
	X102(32KHz)	CRYSTAL	VSS1197
	X801	CERAMIC OSCILLATOR	CSS1616
	X901 (18.432MHz)		VSS1189
	KN405	WRAPPING TERMINAL	VNF1084
	CN101	23P FFC CONNECTOR	9604S-23C
	CN102	9P FFC CONNECTOR	VKN2015
	CN303	KR CONNECTOR	B5B-PH-K
	CN604, CN605	29P FFC CONNECTOR	VKN1433
	CN4002	35P FFC CONNECTOR	VKN1439
	CN5001	KR CONNECTOR	B2B-PH-K
	JA2003	JACK	VKB1193
	JA2004	1P PIN JACK	VKB1159
	JA2010	3P PIN JACK	VKB1165
	JA4001, JA4002	REMOCON JACK	RKN1004

B SCRB ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC2000		BH7236AF
	IC2002		LA7213
	IC2006		TC4W53FU
	IC2005		TC74HC123AF
	IC2004		TC7SU04FU
	IC806		TC7W53FU
	Q2006, Q2010, Q2011, Q806		2SA1576A
	Q2002, Q2007-Q2009, Q810-Q812		2SC4081
	Q820, Q821, Q823, Q824		2SD2114K
	Q803, Q805		DTA124EUA
	Q2001, Q2003, Q2005		HN1C01FU
	Q804		UMH1N
	D801, D820, D829		1SS355
	D830, D831		DAN217U
	D816, D819		UDZS5R1(B)

Mark	No. Description	Part No.
	D802-D815, D822-D826, D828	UMZ6R8N

COILS AND FILTERS

Mark	No. Description	Part No.
	L2001	LAU3R9J
	L2000	LAU680J
	L801, L802 CHIP BEADS	VTL1087

CAPACITORS

Mark	No. Description	Part No.
	C846-C849	CCSRCH102J50
	C2012	CCSRCH220J50
	C871, C873	CCSRCH221J50
	C2005, C2009	CCSRCH270J50
	C2051	CCSRCH331J50
	C2092, C2093, C836-C845	CCSRCH471J50
	C2084	CEAT101M10
	C834	CEAT101M16
	C18, C27	CEAT102M6R3
	C2113, C2114	CEAT221M16
	C2001-C2003, C2105	CEAT221M6R3
	C2006	CEAT2R2M50
	C35-C37	CEAT471M6R3
	C60-C63	CEAT4R7M50
	C2089-C2091	CKSRYB104K16
	C2104	CKSRYB221K50
	C2008, C2011, C2102, C2109	CKSRYF104Z25
	C2123-C2125	CKSRYF104Z25
	C2107, C2108	CQMBA103J50

RESISTORS

Mark	No. Description	Part No.
	R10, R4, R8, R856, R861	RS1/10S0R0J
	R9	RS1/10S0R0J
	R810	RS1/10S561J
	R7, R77-R80, R842, R855	RS1/10S75R0F
	R857, R863	RS1/10S75R0F
	R2012, R2018, R2025	RS1/16S1001F
	R2016	RS1/16S1203F
	R2036	RS1/16S1803F
	R2027	RS1/16S4702F
	R2035	RS1/16S4703F
	R2007, R2022, R2030	RS1/16S6800F
	R2001, R2002, R2015	RS1/16S82R0F
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	JA801, JA802 RGB CONNECTOR	VKB1157
	CN1, CN22 29P FFC CONNECTOR	VKN1260
	X2000 (4.433619MHz) CRYSTAL	VSS1201

C FJKB ASSY

CAPACITORS

Mark	No. Description	Part No.
	C7303, C7305	CCSRCH471J50

OTHERS

Mark	No. Description	Part No.
	KN7301 WRAPPING TERMINAL	VNF1084
	CN7302 12P FFC CONNECTOR	9604S-12C
	CN7301 CONNECTOR	9604S-23C
	JA7301 4P MINIDIN SOCKET(S)	AKP1238
	JA7302 JACK	VKB1208

D FLKY ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC7001	PT6315
	IC7002	RPM7140-H9
	Q7004	2SA1576A
	Q7005	2SC4081
	Q7003	2SC5712
	Q7001	DTC124EUA
	D7004	1SS355
⚠	D7003, D7007	RF101L2S
	D7001	SLR-343BBT
	D7002	SLR-343DC
	D7008	UDZS13(B)
	D7005	UDZS15(B)
	D7006	UDZS2R4(B)
	D7301-D7304	UMZ6R8N

TRANSFORMERS

Mark	No. Description	Part No.
⚠	T7001	VTT1171

COILS AND FILTERS

Mark	No. Description	Part No.
	L7001	LAU220J

SWITCHES AND RELAYS

Mark	No. Description	Part No.
	S7001-S7010	VSG1024

CAPACITORS

Mark	No. Description	Part No.
	C7021	CEAL100M50
	C7016, C7027	CEAL101M10
	C7017	CEAL101M16
	C7003, C7004, C7023	CKSRYB103K50
	C7018	CKSRYB223K25
	C7001, C7007, C7014, C7015, C7020	CKSRYF104Z25
	C7026, C7028, C7034	CKSRYF104Z25
	C7008	CKSRYF104Z50

RESISTORS

Mark	No. Description	Part No.
	R7018	RS1/10S221J
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	CN7001 12P FFC CONNECTOR	9604S-12C
	J7001 CONNECTOR ASSY	PF03PG-B05
	V7001 FLUORESCENT TUBE	VAW1091

E KEYB ASSY

SWITCHES AND RELAYS

Mark	No. Description	Part No.
	S7201	VSG1024

OTHERS

Mark	No. Description	Part No.
	CN7201 CONNECTOR POST	B3B-PH-K

F MAIN ASSY (DVR-640H-AV)

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC3101	AK5359ET
	IC501	BD7997FS
	IC2401, IC2402	CEK1285
	IC1201, IC1221 (*) Refer to 7.1.11(P125)	K4H511638C-UCB3
	IC5631	LM3526M-L
	IC2202	MM1501XN
	IC2201	MM1503XN

Mark	No.	Description	Part No.
⚠	IC5621		MM1565AF
	IC1301		NJM12904V
	IC3802		PCA9557PW
	IC3201		PCM1742KE
	IC3707		PST3813U
⚠	IC4512		S-1170B25UC-OTK
⚠	IC4507, IC4511		S-1170B33UC-OTS
⚠	IC4504		S-1170B50UC-OUJ
	IC3103		TC74VHC157FT
	IC3102		TC7SZ126FU
	IC3701		TC7WH34FU
	IC5701		TDOTG242-0F0C8
	IC101		UPC3345GC-YEB-A
	IC3202		UPC4570G2-A
	IC1001		UPD61272F1-107KA3A
	IC1102		VYW2366
	Q1801, Q1811, Q2205, Q2206		2SA1576A
	Q2501-Q2505		2SA1576A
	Q3501, Q4561		2SC4081
	Q101		RT1N141U
	D3201		DAN202U
	D3711, D3712		RB501V-40
	D101		SML-310YT

COILS AND FILTERS

Mark	No.	Description	Part No.
	L1010, L106, L107, L112	CHIP COIL	BTH1103
	L1001, L1003, L1004, L1006-L1008		DTL1106
	L1201, L3102, L5701	EMI FILTER	DTL1106
	L1811		LCYA150J2520
	L1801		LCYA390J2520

CAPACITORS

Mark	No.	Description	Part No.
	C1081		CCSSCH100D50
	C158-C162, C1813		CCSSCH101J50
	C3207, C3211		CCSSCH121J50
	C1902, C1911		CCSSCH150J50
	C1812		CCSSCH151J50
	C1901, C1912		CCSSCH180J50
	C1803		CCSSCH221J50
	C169, C171, C509		CCSSCH390J50
	C3501, C3808-C3810		CCSSCH470J50
	C1084-C1087		CCSSCH5R0C50
	C510		CCSSCH620J50
	C264		CCSSCH680J50
	C5721, C5722		CCSSCK2R0C50
	C3212		CEAT102M6R3
	C1708, C4507		CEVW100M16
	C2506, C3106, C3214, C3216, C4542		CEVW101M16
	C4563, C5624		CEVW101M16
	C1001, C1003, C1005, C1014, C1020		CEVW221M4
	C1071, C1074, C1235, C5701		CEVW221M4
	C511		CKSQYB105K16
	C5623		CKSQYB225K10
	C105, C1073, C1076, C121-C123		CKSQYB475K6R3
	C125, C133, C135, C152, C153		CKSQYB475K6R3
	C155, C165, C168, C178, C181		CKSQYB475K6R3
	C184, C4508, C4525, C4526		CKSQYB475K6R3
	C4548, C4549, C4552, C5725		CKSQYB475K6R3
	C157, C2221, C2222, C4551		CKSRYB105K10
	C109, C111		CKSRYB334K10
	C101, C102, C136		CKSRYB474K10
	C1009, C1015, C1018, C1021, C1024		CKSRYF105Z10

Mark	No.	Description	Part No.
	C1044, C1047, C1052, C1055		CKSRYF105Z10
	C1061, C1062, C1065, C1070, C1113		CKSRYF105Z10
	C1202, C1204, C1208, C1221, C1223		CKSRYF105Z10
	C1227, C1421, C1801, C1811		CKSRYF105Z10
	C2208, C2209, C2501, C296		CKSRYF105Z10
	C3102, C3103, C3107, C3511, C3703		CKSRYF105Z10
	C3738, C3801-C3805, C5621, C5702		CKSRYF105Z10
	C5711-C5720		CKSRYF105Z10
	C1010, C1016, C1019, C1022, C1025		CKSSYB102K50
	C1046, C1049, C1054, C1057, C1059		CKSSYB102K50
	C1064, C1067, C1068, C1207		CKSSYB102K50
	C1209, C1210, C1226, C1228, C1229		CKSSYB102K50
	C151, C189, C261, C4527, C4550		CKSSYB102K50
	C5506, C5622		CKSSYB102K50
	C119, C1205, C1206, C1224, C1225		CKSSYB103K16
	C129, C130, C142, C164, C1709		CKSSYB103K16
	C187, C188, C221, C2223, C2224		CKSSYB103K16
	C3701, C4509		CKSSYB103K16
	C1026, C1029, C103, C1034, C1037		CKSSYB104K10
	C104, C1040, C1043, C112, C117		CKSSYB104K10
	C124, C126-C128, C132		CKSSYB104K10
	C143, C144, C150, C156, C163		CKSSYB104K10
	C167, C172, C175, C2301, C2302		CKSSYB104K10
	C260, C3806, C3815, C3816		CKSSYB104K10
	C504, C505		CKSSYB104K10
	C137		CKSSYB182K50
	C145, C146		CKSSYB222K50
	C224, C230, C231		CKSSYB223K16
	C108, C110, C139, C141, C1802		CKSSYB331K50
	C3204		CKSSYB331K50
	C114		CKSSYB332K50
	C116		CKSSYB333K10
	C232, C233		CKSSYB471K50
	C148, C220, C223		CKSSYB472K25
	C147, C1804, C1814, C532		CKSSYB473K10
	C297, C3208, C3210		CKSSYB681K50
	C138		CKSSYB682K25
	C154, C236		CKSSYB683K10
	C115		CKSSYB822K16
	C1002, C1004, C1007, C1045, C1048		CKSSYF104Z16
	C1050, C1051, C1053, C1056, C1058		CKSSYF104Z16
	C1060, C1063, C1066, C1069, C1082		CKSSYF104Z16
	C1105, C1203, C1211-C1214, C1222		CKSSYF104Z16
	C1230, C1302, C1303, C1312, C1313		CKSSYF104Z16
	C1701-C1707, C2401-C2406, C3101		CKSSYF104Z16
	C3108, C3201-C3203, C3206, C3209		CKSSYF104Z16
	C4561, C4562, C4565, C501, C503		CKSSYF104Z16
	C5512		CKSSYF104Z16
	C113 (2.2/10)		DCG1040
	C502 810/16)		DCH1165
	C1008, C1017, C107, C1075, C118		DCH1201
	C2210, C2217, C5727-C5729 (10/10)		DCH1201
	C1215 (150/4)		VCH1246

RESISTORS

Mark	No.	Description	Part No.
	R501 (0.47/1/4W)		DCN1160
	R502 (0.68/1/4W)		DCN1162
	R3854		RAB4CQ0R0J
	R1411, R240, R3005, R3102, R3707		RAB4CQ103J
	R3801-R3806		RAB4CQ223J

Mark	No.	Description	Part No.
	R1245, R1246, R1255, R1256		RAB4CQ330J
	R1265, R1266, R1273, R1274		RAB4CQ330J
	R3810-R3813, R3824		RAB4CQ330J
	R254		RAB4CQ473J
	R1241, R1242, R1248, R1249		RAB4CQ560J
	R1261, R1262, R1268, R1269		RAB4CQ560J
	R1281-R1283, R1287		RAB4CQ560J
	R3208, R3223		RN1/16SC56R0D
	R3207, R3226		RN1/16SE1502D
	R3209, R3224		RN1/16SE8201D
	R1001, R1002, R133, R2401		RS1/10S0R0J
	R4513, R4514, R4517, R4520-R4524		RS1/10S0R0J
	R4527, R4591-R4593, R5702		RS1/10S0R0J
	R1302, R1303, R1312, R1313		RS1/16S1001F
	R5714		RS1/16S1501F
	R2502, R2505, R2508, R2511, R2514		RS1/16S2000F
	R1301		RS1/16S4700F
	R1052		RS1/16S6200F
	R3505		RS1/16S75R0F
	R1054		RS1/16S9100F
	R181		RS1/16SS4701F
	R510, R511		RS1/4SA2R0J
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN502	4P CONNECTOR	DKN1288
	CN501	D-SOCKET(14P)	DKN1312
	CN601	5P CONNECTOR	DKN1402
	CN101	CONNECTOR	DKN1404
	X201 (16.93MHz)	OSC	DSS1152
	CN1402	07P CONNECTOR	RKN1048
	CN5601	CONNECTOR POST	S10B-PH-K
	CN2401	KR CONNECTOR	S13B-PH-K
	CN2301	35P CONNECTOR	VKN1439
	CN401	CONNECTOR	VKN2029
	CN1401	CONNECTOR	VKN2030
	CN3802	CONNECTOR	VKN2045
	CN3801	CONNECTOR	VKN2050
	X1002 (27MHz)	CRYSTAL	VSS1191
	X1001 (24.576MHz)	CRYSTAL	VSS1192
	X5701 (6MHz)	CRYSTAL	VSS1210

F MAIN ASSY (DVR-540H-S)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC3101		AK5359ET
	IC501		BD7997FS
	IC2401, IC2402		CEK1285
	IC1201, IC1221	(*) Refer to 7.1.11(P125)	K4H511638C-UCB3
	IC1301		NJM12904V
	IC3201		PCM1742KE
	IC3707		PST3813U
⚠	IC4512		S-1170B25UC-OTK
⚠	IC4507, IC4511		S-1170B33UC-OTS
⚠	IC4504		S-1170B50UC-OUJ
	IC3701		TC7WH34FU
	IC101		UPC3345GC-YEB-A
	IC3202		UPC4570G2-A
	IC1001		UPD61272F1-107KA3A
	IC1102		VYW2365
	Q1801, Q1811, Q2205, Q2206		2SA1576A
	Q2501-Q2505		2SA1576A
	Q3501, Q4561		2SC4081
	Q101		RT1N141U
	D3201		DAN202U
	D3711, D3712		RB501V-40
	D101		SML-310YT

COILS AND FILTERS

Mark	No.	Description	Part No.
	L1010, L106, L107, L112	CHIP COIL	BTH1103
	L1001, L1003, L1004, L1006-L1008		DTL1106
	L1201	EMI FILTER	DTL1106
	L1811		LCYA150J2520
	L1801		LCYA390J2520

CAPACITORS

Mark	No.	Description	Part No.
	C1081		CCSSCH100D50
	C158-C162, C1813		CCSSCH101J50
	C3207, C3211		CCSSCH121J50
	C1902, C1911		CCSSCH150J50
	C1812		CCSSCH151J50
	C1901, C1912		CCSSCH180J50
	C1803		CCSSCH221J50
	C169, C171, C509		CCSSCH390J50
	C3501		CCSSCH470J50
	C1084-C1087		CCSSCH5R0C50
	C510		CCSSCH620J50
	C264		CCSSCH680J50
	C3212		CEAT102M6R3
	C1708, C4507		CEVW100M16
	C2506, C3106, C3214, C3216, C4542		CEVW101M16
	C4563		CEVW101M16
	C1001, C1003, C1005, C1014, C1020		CEVW221M4
	C1071, C1074, C1235		CEVW221M4
	C511		CKSQYB105K16
	C105, C1073, C1076, C121-C123		CKSQYB475K6R3
	C125, C133, C135, C152, C153		CKSQYB475K6R3
	C155, C165, C168, C178, C181		CKSQYB475K6R3
	C184, C4508, C4525, C4526		CKSQYB475K6R3
	C4548, C4549, C4552		CKSQYB475K6R3
	C157, C4551		CKSRYB105K10
	C109, C111		CKSRYB334K10
	C101, C102, C136		CKSRYB474K10
	C1009, C1015, C1018, C1021, C1024		CKSRYF105Z10
	C1044, C1047, C1052, C1055		CKSRYF105Z10
	C1061, C1062, C1065, C1070, C1113		CKSRYF105Z10
	C1202, C1204, C1208, C1221, C1223		CKSRYF105Z10
	C1227, C1421, C1801, C1811		CKSRYF105Z10
	C2208, C2209, C2501, C296		CKSRYF105Z10
	C3102, C3103, C3511, C3703, C3738		CKSRYF105Z10
	C3801-C3805		CKSRYF105Z10
	C1010, C1016, C1019, C1022, C1025		CKSSYB102K50
	C1046, C1049, C1054, C1057, C1059		CKSSYB102K50
	C1064, C1067, C1068, C1207		CKSSYB102K50
	C1209, C1210, C1226, C1228, C1229		CKSSYB102K50
	C151, C189, C261, C4527, C4550		CKSSYB102K50
	C119, C1205, C1206, C1224, C1225		CKSSYB103K16
	C129, C130, C142, C164, C1709		CKSSYB103K16
	C187, C188, C221, C3701, C4509		CKSSYB103K16
	C1026, C1029, C103, C1034, C1037		CKSSYB104K10
	C104, C1040, C1043, C112, C117		CKSSYB104K10

Mark	No. Description	Part No.
	C124, C126-C128, C132	CKSSYB104K10
	C143, C144, C150, C156, C163	CKSSYB104K10
	C167, C172, C175, C2301, C2302	CKSSYB104K10
	C260, C3806, C504, C505	CKSSYB104K10
	C137	CKSSYB182K50
	C145, C146	CKSSYB222K50
	C224, C230, C231	CKSSYB223K16
	C108, C110, C139, C141, C1802	CKSSYB331K50
	C3204	CKSSYB331K50
	C114	CKSSYB332K50
	C116	CKSSYB333K10
	C232, C233	CKSSYB471K50
	C148, C220, C223	CKSSYB472K25
	C147, C1804, C1814, C532	CKSSYB473K10
	C297, C3208, C3210	CKSSYB681K50
	C138	CKSSYB682K25
	C154, C236	CKSSYB683K10
	C115	CKSSYB822K16
	C1002, C1004, C1007, C1045, C1048	CKSSYF104Z16
	C1050, C1051, C1053, C1056, C1058	CKSSYF104Z16
	C1060, C1063, C1066, C1069, C1082	CKSSYF104Z16
	C1105, C1203, C1211-C1214, C1222	CKSSYF104Z16
	C1230, C1302, C1303, C1312, C1313	CKSSYF104Z16
	C1701-C1707, C2401-C2406, C3101	CKSSYF104Z16
	C3201-C3203, C3206, C3209	CKSSYF104Z16
	C4561, C4562, C4565, C501, C503	CKSSYF104Z16
	C113 (2.2/10)	DCG1040
	C502 (10/16)	DCH1165
	C1008, C1017, C107, C1075, C118	DCH1201
	C2210, C2217 (10/10)	DCH1201
	C1215 (150/4)	VCH1246

RESISTORS

Mark	No. Description	Part No.
	R501 (0.47/1/4W)	DCN1160
	R502 (0.68/1/4W)	DCN1162
	R1411, R240, R3005, R3102, R3707	RAB4CQ103J
	R3801-R3806	RAB4CQ223J
	R1245, R1246, R1255, R1256	RAB4CQ330J
	R1265, R1266, R1273, R1274	RAB4CQ330J
	R3810-R3813, R3824	RAB4CQ330J
	R254	RAB4CQ473J
	R1241, R1242, R1248, R1249	RAB4CQ560J
	R1261, R1262, R1268, R1269	RAB4CQ560J
	R1281-R1283, R1287	RAB4CQ560J
	R3208, R3223	RN1/16SC56R0D
	R3207, R3226	RN1/16SE1502D
	R3209, R3224	RN1/16SE8201D
	R1001, R1002, R133, R2401	RS1/10S0R0J
	R4513, R4514, R4520-R4524, R4527	RS1/10S0R0J
	R4591-R4593	RS1/10S0R0J
	R1302, R1303, R1312, R1313	RS1/16S1001F
	R2502, R2505, R2508, R2511, R2514	RS1/16S2000F
	R1301	RS1/16S4700F
	R1052	RS1/16S6200F
	R3505	RS1/16S75R0F
	R1054	RS1/16S9100F
	R181	RS1/16SS4701F
	R510, R511	RS1/4SA2R0J
	Other Resistors	RS1/16S###J

OTHERS

Mark	No. Description	Part No.
	CN502 4P CONNECTOR	DKN1288
	CN501 CONNECTOR	DKN1312
	CN601 5P CONNECTOR	DKN1402
	CN101 CONNECTOR	DKN1404
	X201 (16.93MHz) OSC	DSS1152
	CN1402 07P CONNECTOR	RKN1048
	CN2401 KR CONNECTOR	S13B-PH-K
	CN2301 35P CONNECTOR	VKN1439
	CN401 CONNECTOR	VKN2029
	CN1401 CONNECTOR	VKN2030
	CN2601 CONNECTOR	VKN2038
	CN3801 CONNECTOR	VKN2050
	X1002 (27MHz) CRYSTAL	VSS1191
	X1001 (24.576MHz) CRYSTAL	VSS1192

G DVJB ASSY (DVR-640H-AV Only)

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC101	ADV7172KSTZ
	IC103	HY57V161610ETP-8
	IC105, IC107	NJU7013F
⚠	IC106	S-1170B25UC-OTK
	IC104	TC7WHU04FU
	IC108	UPD72852AGB-8EU-A
	IC102	UPD72893BF1-FN3
	Q101-Q104	2SA1576A
	D101	HVC359
	D102	HVC362

COILS AND FILTERS

Mark	No. Description	Part No.
	F101 CHIP COIL	DTF1069
	L106, L107 EMI FILTER	DTL1106
	L101, L102	LCYA100J2520
	L109, L111	LCYA150J2520
	L108, L110	LCYA180J2520
	L104, L105 COIL	VTH1043

CAPACITORS

Mark	No. Description	Part No.
	C200, C218	CCSRCH100D50
	C258	CCSRCH271J50
	C211, C213	CCSRCH330J50
	C212	CCSRCH5R0C50
	C254, C255	CCSRCH8R0D50
	C107, C112	CCSSCH330J50
	C161-C163	CCSSCH470J50
	C103, C108	CCSSCH680J50
	C104, C109	CCSSCH7R0D50
	C106, C111	CCSSCH820J50
	C105, C110	CCSSCJ3R0C50
	C144, C220, C223	CEVW221M4
	C101, C102, C122, C126, C140	CKSQYF106Z10
	C142, C147, C204, C207, C214	CKSQYF106Z10
	C230, C233, C248, C252	CKSQYF106Z10
	C222	CKSQYF475Z10
	C201, C205	CKSRYB104K16
	C203, C210, C245, C249, C250	CKSRYF104Z25
	C124, C127-C135, C141, C143	CKSRYF105Z10
	C146, C148-C160, C206, C215	CKSRYF105Z10
	C231, C240, C241, C243, C244	CKSRYF105Z10
	C246, C247, C251, C253	CKSRYF105Z10
	C256, C257	CKSRYF105Z10

Mark	No.	Description	Part No.
	C216		CKSRYF473Z25
	C145, C235		CKSSYB103K16
	C113-C117, C123, C125, C136		CKSSYF104Z16
	C232, C234, C237, C242		CKSSYF104Z16
	C259-C261		CKSSYF104Z16

RESISTORS

Mark	No.	Description	Part No.
	R144-R149, R155-R158		RAB4CQ103J
	R169-R172, R185-R188		RAB4CQ103J
	R150, R151		RAB4CQ470J
	R248		RN1/16SE9101D
	R141, R197, R198, R211, R215		RS1/10S0R0J
	R105, R111		RS1/16S1500F
	R268		RS1/16S5101F
	R264-R267		RS1/16S56R0D
	R135		RS1/16S6800F
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	JA101	1394-TERMINAL	VKN2028
	CN101	CONNECTOR	VKN2045
	X102	(24.576MHz) CRYSTAL	VSS1184
	X101	(27.000MHz) VCXO	VSS1195

H USBB ASSY (DVR-640H-AV Only)

COILS AND FILTERS

Mark	No.	Description	Part No.
	L105, L106	COIL	VTH1054
	L101-L104	CHIP FERRITE BEAD	VTL1169

CAPACITORS

Mark	No.	Description	Part No.
	C102		CEVW221M6R3
	C101		CKSRYF104Z25

RESISTORS

Mark	No.	Description	Part No.
	Other Resistors		RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN101	CONNECTOR	B10B-PH-K
	JA101	USB CONNECTOR	VKB1226
	JA102	USB CONNECTOR	VKB1227

I ATAB ASSY

RESISTORS

Mark	No.	Description	Part No.
	R13-R20		RAB4C0R0J

OTHERS

Mark	No.	Description	Part No.
	CN12	40P ATA CONECTOR	VKN1816
	CN11	40P CONNECTOR	VKN1818

J POWER SUPPLY UNIT

POWER SUPPLY UNIT has no service part.

6. ADJUSTMENT

[Purpose]

If the combination of MAIN Assy and LOADER Assy is changed, the adjusted value for LD power will be shifted, and stable playback or recording of a disc will become impossible.
Therefore, when the combination of MAIN Assy and LOADER Assy is changed, LD power adjustment and adjustment for disc judgment will be necessary.
Be sure to do this adjustment at following cases.

- When replacing MAIN Assy
- When replacing LOADER Assy

[Tools to be used]

- Special tool for adjusting the LD power (GGF1559)
- 10-pin FFC flexible cable (GGD1477)
- CD-ROM test disc: CDT-313 (GGV1054)
- DVD dual-layer test disc: DVDT-002 (GGV1036)

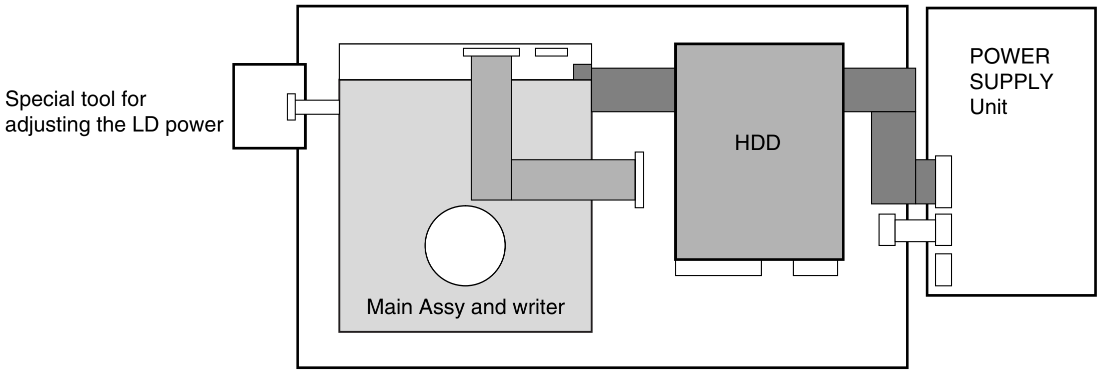
[Notes]

Never turn the power off while any of the following operations is in progress:

- While laser diode (LD) power adjustment is being performed normally by the unit
- While adjustment for disc judgment is being performed

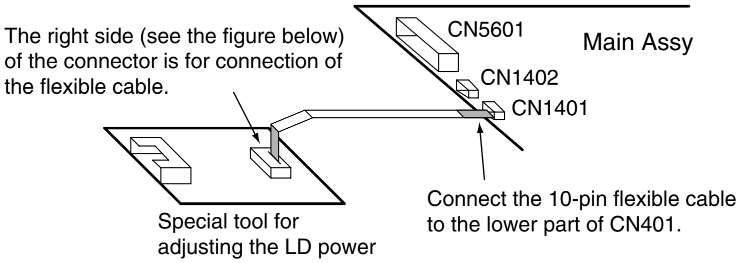
[Connections]

- Connections for adjusting the LD power

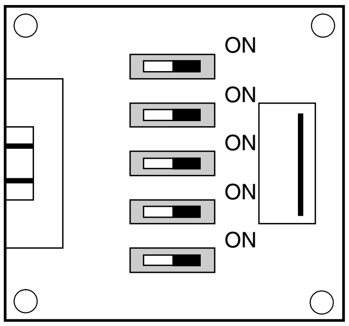

Special tool for adjusting the LD power
HDD
POWER SUPPLY Unit
Main Assy and writer

Note: Before adjusting the LD power, disconnect the power to the HDD and the flexible cable for ATA (40-pin).

- To which the special tool for adjusting the LD power is connected


The right side (see the figure below) of the connector is for connection of the flexible cable.
CN5601
Main Assy
CN1402
CN1401
Special tool for adjusting the LD power
Connect the 10-pin flexible cable to the lower part of CN401.

- Setting of the switches on the special tool for adjusting the LD power


ON
ON
ON
ON
ON

Set all five switches to ON.

[Procedures]

1. Connect the special tool for adjusting the LD power, as shown on the previous page.

2. Turn on the DVD recorder. ("POWER ON" will be indicated on the FL display.)

3. The tray opens.
   Make sure that powered opening of the tray is working.
   If the tray does not open under power:
   - a. Flexible cables or other cables may not be connected. (Connection of cables to the HDD is not necessary.)
   - b. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.
   - c. Failure in the loader, MAIN Assy, or POWER SUPPLY Unit is suspected.

   Make sure that the LED next to CN401 is lit.
   If the LED flashes:
   - a. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.

4. Manually close the tray. Adjust the LD power.
   Make sure that the LED next to CN401 is lit.
   If the LED flashes three or four times in a burst:
   - a. The PU flexible cable may not be connected.
   - b. Failure in the Traverse Mechanism or MAIN Assy is suspected.

5. After adjusting the LD power, invoke powered opening of the tray.
   Make sure that the LED next to CN401 flashes once per burst.

6. Load the DVDT-002 on the tray.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

7. After adjustment for judging the DVD disc, the tray automatically opens.
   Make sure that the LED next to CN401 flashes twice in a burst.
   If the LED flashes only once per burst:
   - a. A disc other than the DVDT-002 may be loaded. Be sure to load the DVDT-002.

8. Replace the DVDT-002 with the CDT-313.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

9. After adjustment for judging the CD disc, the tray automatically opens.
   Make sure that the LED next to CN401 is unlit.
   If the LED flashes twice in a burst:
   - a. A disc other than the CDT-313 may be loaded. Be sure to load the CDT-313.

10. Unload the CDT-313 and manually close the tray.

11. Turn off the recorder by holding the POWER button pressed for several seconds.

12. Disconnect the 10-pin FFC cable from the MAIN Assy.

13. Set the power sources for the HDD and the flexible connecting cable for ATA (40-pin) to their original statuses.

[Points to be confirmed]

1. Make sure that real-time recording on a DVD-R/-RW/RAM will finish normally.
2. Play back a recorded disc and make sure that playback is performed without a problem.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

◆ Jigs and Tools to be used

Remote control unit for serving (GGF1381)
DVD Recorder Data Disc (Type 2)(*)
Download disc
Test disc (GGV1025)
DVD-RW (Commercial goods)

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

◆ Service Mode List

1. Setting type

Item	When to perform
7.1.1 Model setting	• When replacing MAIN ASSY or TUJB ASSY.
7.1.2 CPRM ID number and data	• When "CPRM ERROR" is displayed on the display screen. • After the MAIN ASSY or HDD replaced.
7.1.3 Firmware downloading method	• After model setting (After replacing MAIN ASSY, TUJB ASSY). • After the HDD is replaced. • When NG is displayed for the version infomation in Service mode.
7.1.4 Video Adjustment for Specific Area	• When a flicker appears on the tuner display like a horizontal or vertial out-of-sync symptom
7.1.5 (4) OSD Filter Setting	• When a character flicker appears on the OSD depending on the monitor.

2. Diagnosis type

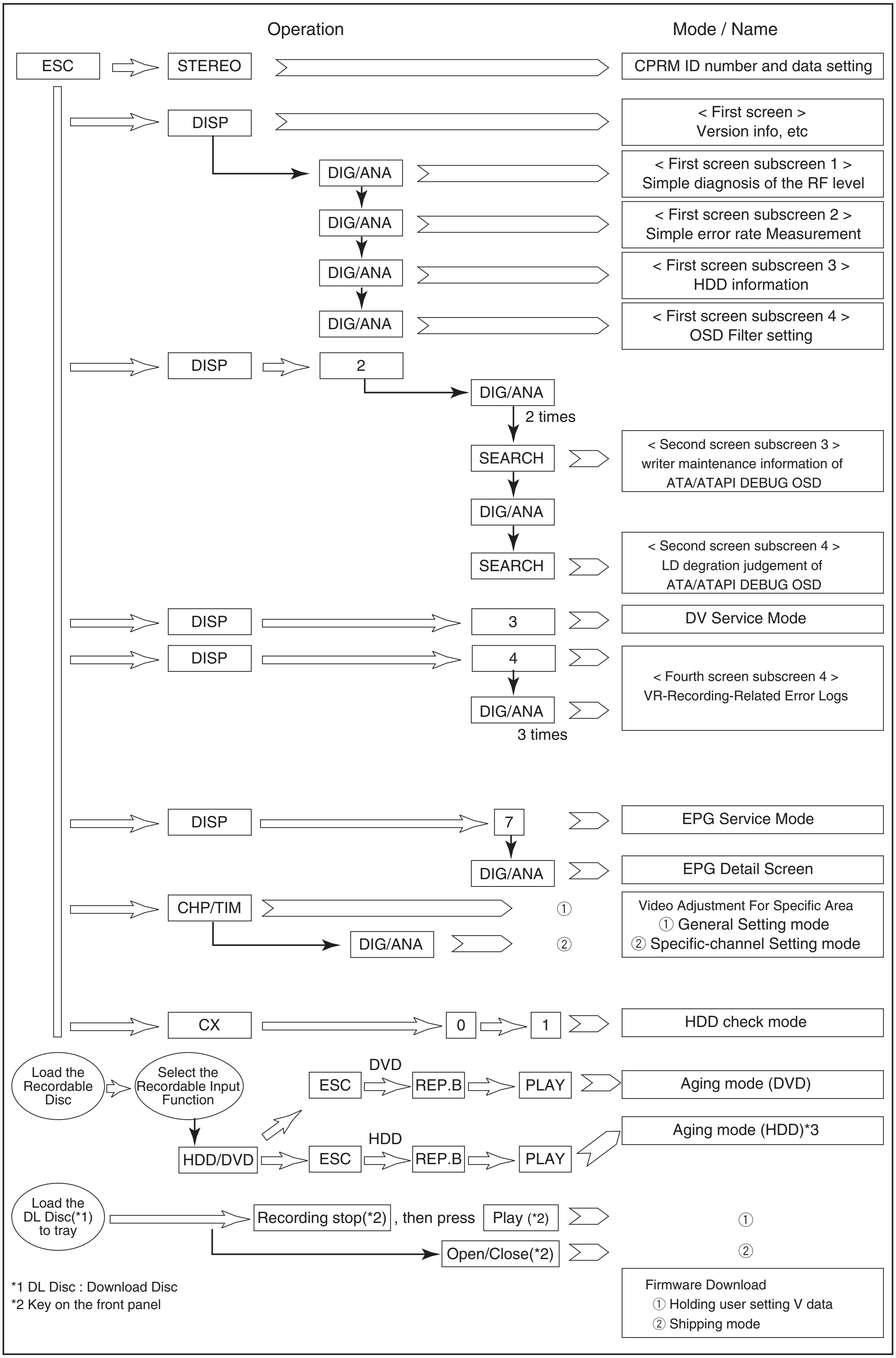
7.1.5 Service Mode First screen : Version, Simple diagnosis of the RF level, Simple error rate measurement, HDD information. Second screen : ATA/ATAPI debug screen, LD degration judgement Fourth screen : VR-recording-related error loss	• When confirming version infomation • When confirming the state of DRIVE Assy.
7.1.6 DV Service Mode (DVR-640H-AV only)	When any failures occurs while a DV device connected
7.1.7 EPG Service Mode	When EPG data cannnot be or can be only partially obtained.
7.1.8 Aging Mode	When a claimed sympton is difficult to reproduce.
7.1.9 HDD Check Mode	When checking the quality of HDD.

◆ Necessary procedure List when replacing Assys

Following is the surely necessary procedures and the produet state after changing when replacing next ASSYs.

Replaced ASSY	Necessary setting	State after replacing	
		User setting	HDD contents
MAIN ASSY TUJB ASSY	1. Model setting 2. LD power adjustment 3. CPRM setting 4. Firmwave download	×	○
HDD	1. CPRM setting 2. Firmwave download	○	×

◆ SERVICE MODE MAP


Operation
Mode / Name
ESC
STEREO
CPRM ID number and data setting
DISP
< First screen >
Version info, etc
DIG/ANA
< First screen subscreen 1 >
Simple diagnosis of the RF level
DIG/ANA
< First screen subscreen 2 >
Simple error rate Measurement
DIG/ANA
< First screen subscreen 3 >
HDD information
DIG/ANA
< First screen subscreen 4 >
OSD Filter setting
DISP
2
DIG/ANA
2 times
SEARCH
< Second screen subscreen 3 >
writer maintenance information of
ATA/ATAPI DEBUG OSD
DIG/ANA
SEARCH
< Second screen subscreen 4 >
LD degration judgement of
ATA/ATAPI DEBUG OSD
DISP
3
DV Service Mode
DISP
4
DIG/ANA
3 times
< Fourth screen subscreen 4 >
VR-Recording-Related Error Logs
DISP
7
EPG Service Mode
DIG/ANA
EPG Detail Screen
CHP/TIM
①
DIG/ANA
②
Video Adjustment For Specific Area
① General Setting mode
② Specific-channel Setting mode
CX
0
1
HDD check mode
Load the Recordable Disc
Select the Recordable Input Function
DVD
ESC
REP.B
PLAY
Aging mode (DVD)
HDD/DVD
HDD
ESC
REP.B
PLAY
Aging mode (HDD)*3
Load the DL Disc(*1) to tray
Recording stop(*2)
, then press
Play (*2)
①
Open/Close(*2)
②
Firmware Download
① Holding user setting V data
② Shipping mode
*1 DL Disc : Download Disc
*2 Key on the front panel

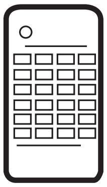
7.1.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or TUJB Assy that are(is) commonly used with another model are(is) replaced, they(it) must recognize the model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]



Remote control unit for servicing (GGF1381)

[Notes]

- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- As this setting resets the Assy(s) in question to the factory-preset status, it is recommended that you obtain the customer's consent beforehand.

[Procedures]

① After power on, the following screen is displayed on TV monitor. Press four digits properly (for example " 0202 ") by using the remote control unit for service, according to the screen information.

[DVR-640H-AV model]

```
[Recorder's Model Setting]
  Input the number using the remote for Service.

 > - - -
   Input No.     Model
   [  0302   :   DVR-640H/WY ]
```

[DVR-540H/DVR-440H series model]

```
[Recorder's Model Setting]
  Input the number using the remote for Service.

 > - - -
   Input No.     Model
    [  0202   :   DVR-540H/WY ]
    [  0203   :   DVR-540H/WV ]
    [  0602   :   DVR-440H/WY ]
    [  0204   :   DVR-540H/WY/RE ]
    [  0604   :   DVR-440H/WY/RE ]
    [  0403   :   DVR-440H/WV ]
```

② Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

③ Reset the recorder to all its factory settings. (Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

④ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm each Model Name (for example " DVR-540H/WY ").

```
DVR-540H/WY        VERSION  :  1.**
  SYSCON   :  RELEASE_100
              Rev     :1.1000
TUNERCON   :  198.000                     OK
    DRIVE  :  DVD-RW DVR-L11X             OK
              1.00                        OK

      HDD  :  WDC WD1600BB-xxGUCx         160

   IRCON   :  1.00                        OK

   DEVICE  :  E2R-FE  1.2     FLASH  :  64M
   REGION  :  2               C  :  *********
```

⑤ End

7.1.2 CPRM ID NUMBER AND DATA SETTING

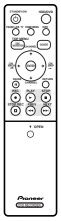
[Purposes]

For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with residual quantity 0:00 or operations in the future may not be guaranteed with RW disc. You will find the ID number to be set on the ID label on the rear panel.

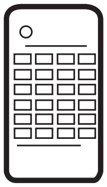
The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY or the HDD is exchanged.

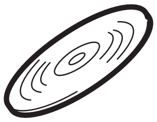
[Tools to be used]



Remote control unit supplied with the unit (VXX3129)



Remote control unit for servicing (GGF1381)



DVD Recorder Data Disc (Type 2)

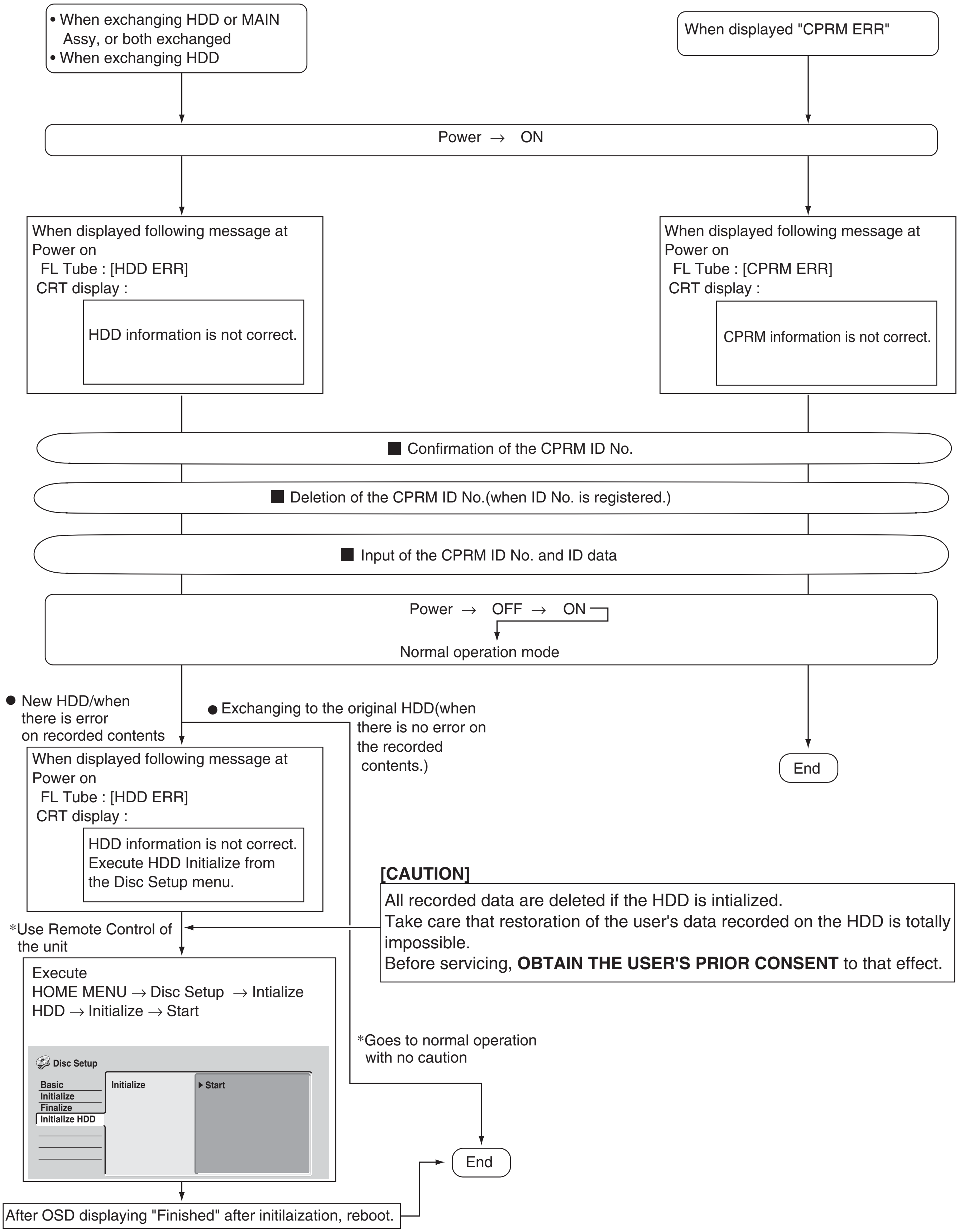
Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

[Notes]

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the data disc (Type 2), the disc will automatically be unloaded.

Input Flow of the ID No. and ID data when exchanging HDD or MAIN Assy



- When exchanging HDD or MAIN Assy, or both exchanged
- When exchanging HDD

When displayed "CPRM ERR"

Power → ON

When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.

When displayed following message at Power on
FL Tube : [CPRM ERR]
CRT display :
CPRM information is not correct.

■ Confirmation of the CPRM ID No.

■ Deletion of the CPRM ID No.(when ID No. is registered.)

■ Input of the CPRM ID No. and ID data

Power → OFF → ON
Normal operation mode

● New HDD/when there is error on recorded contents

● Exchanging to the original HDD(when there is no error on the recorded contents.)

End

When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.
Execute HDD Initialize from the Disc Setup menu.

[CAUTION]

All recorded data are deleted if the HDD is intialized.
Take care that restoration of the user's data recorded on the HDD is totally impossible.
Before servicing, **OBTAIN THE USER'S PRIOR CONSENT** to that effect.

*Use Remote Control of the unit

Execute
HOME MENU → Disc Setup → Intialize HDD → Initialize → Start

*Goes to normal operation with no caution

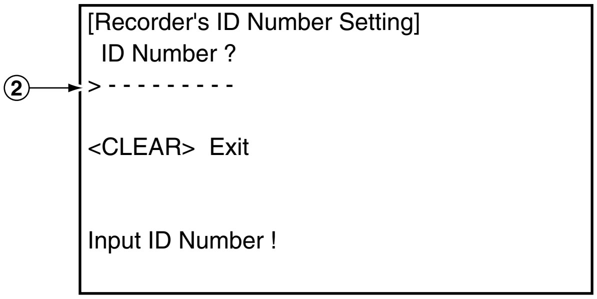
End

After OSD displaying "Finished" after initilaization, reboot.

How to Input the ID Number and ID Data

① To enter the input mode, press ESC + STEREO keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)

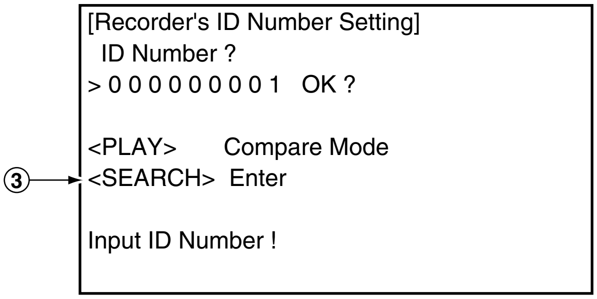


[Recorder's ID Number Setting]
ID Number ?
> - - - - - - - - -

<CLEAR> Exit

Input ID Number !

③ After inputting the number, press SEARCH keys to register the ID number.

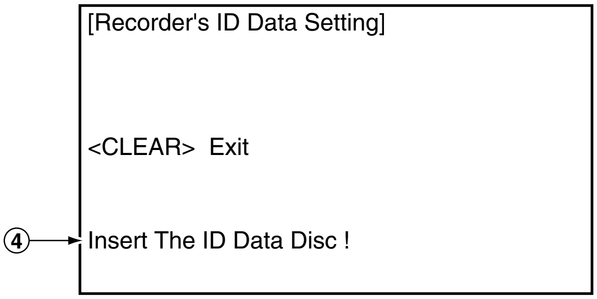


[Recorder's ID Number Setting]
ID Number ?
> 0 0 0 0 0 0 0 0 1 OK ?

<PLAY> Compare Mode
<SEARCH> Enter

Input ID Number !

④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.

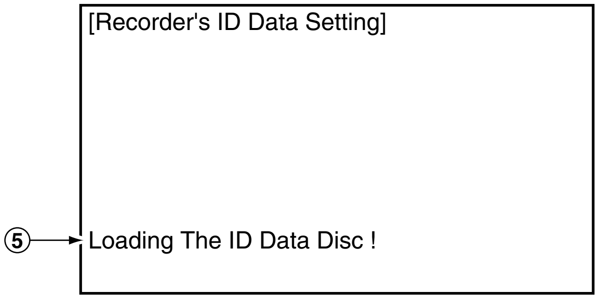


[Recorder's ID Data Setting]

<CLEAR> Exit

Insert The ID Data Disc !

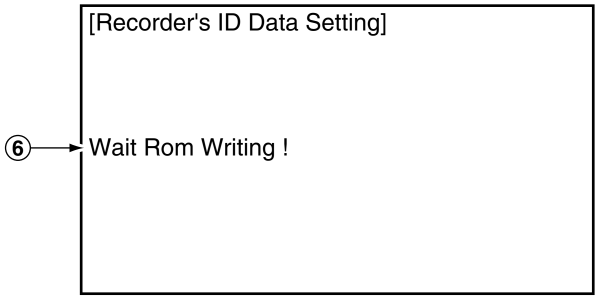
⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")



[Recorder's ID Data Setting]

Loading The ID Data Disc !

⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")

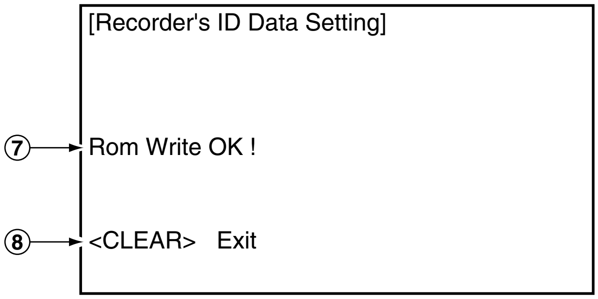


[Recorder's ID Data Setting]

Wait Rom Writing !

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID OK.")

⑧ After confirming this message, press CLEAR key to exit the input mode.



[Recorder's ID Data Setting]

Rom Write OK !

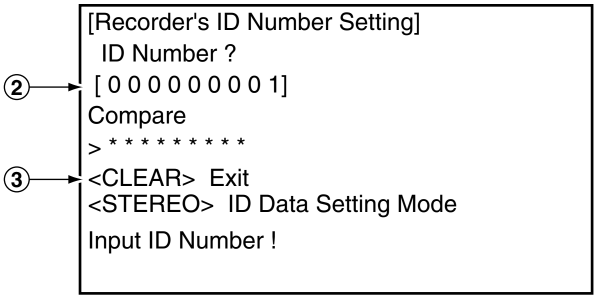
<CLEAR> Exit

[How to Confirm the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR key.

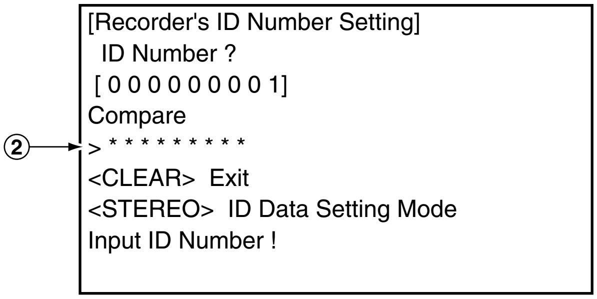


```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

[How to Clear the ID Number]

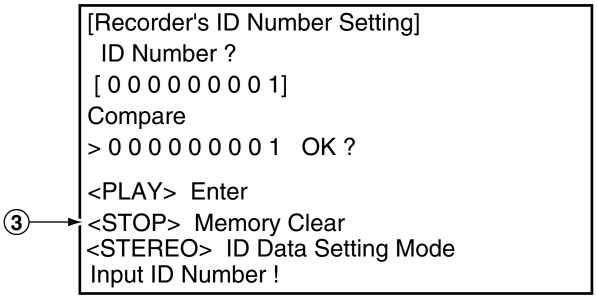
① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

③ After inputting the number, press STOP key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(STOP key is not accepted until 9 digits are entered.)



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1   OK ?
<PLAY>  Enter
<STOP>  Memory Clear
<STEREO>  ID Data Setting Mode
 Input ID Number !
```

7.1.3 FIRMWARE DOWNLOADING METHOD

[Purposes]

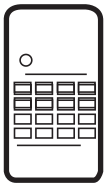
1. When the main board is replaced, the firmware versions for the system control computer, drive, IR microcomputer and the TUFL microcomputer do not match, and operations of the unit may be destabilized.
   To match the versions for the above four, firmware downloading is necessary in the following two cases:
   ① After the model setting
   ② When NG is displayed on the first screen (version information, etc.) of Service mode
   ③ After changing MAIN Assy or TUJB Assy

2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

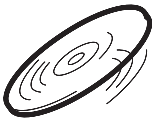
There are the following two methods for downloading: disc download and serial download

1. DISC DOWNLOAD

[Tools to be used]



Remote control unit
for servicing
(GGF1381)



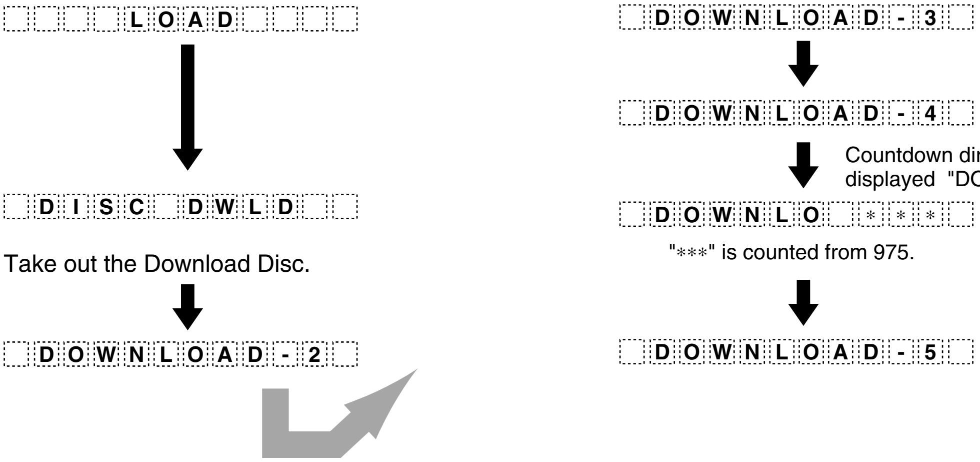
Download DISC

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUNERCON, DRIVE and IR Blaster programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.
② Put the download disc on the tray. Press a " Record Stop " button while pressing a "PLAY" button on the frontpanel.
* The disc tray closes automatically and the disc is loaded.
* The disc tray opens automatically after loading.

FL display



③ Take out the Download Disc.

Countdown directly after displayed "DOWNLOAD-4."

"***" is counted from 975.

* After download is completed, the power turns off, and turns on and a disc tray closes automatically.
* It takes for about 7-8 minutes until download is completed.

④ Press and hold a " ESC " button, then press " DISP " button on the remote control unit for servicing.
⑤ Confirm a firmware release version.
⑥ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

(1) If the power is not correctly turned on or when the power is shut off during downloading, proceed as follows before performing download again:

- In a case where downloading was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
  The SYSCON program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN ASSY.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display:
  The DRIVE program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN Assy.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-4" was displayed on the FL display
  The program for the tuner microcomputer will not function correctly.
  If the program cannot be downloaded from the disc, replace the TUNERCON microcomputer (IC101 : TUJB ASSY).

- In a case where downloading was incorrectly terminated while "DOWNLOAD-5" was displayed on the FL display
  The program for the IR Blaster microcomputer will not function correctly.
  If the program cannot be downloaded from the disc, replace the IR Blaster microcomputer (IC801 : TUJB ASSY).

(2) The setting way to shipping mode (Reference)
At ② lines of the [Procedures], press "OPEN/CLOSE" button while pressing REC STOP button.

2. SERIAL DOWNLOAD

[Purposes]

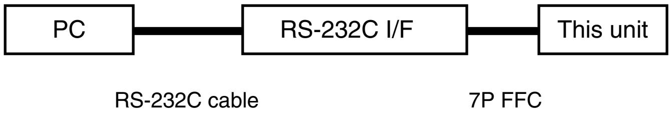
1. When the main board is replaced, the firmware versions for the system control computer, drive, and the TUFL microcomputer do not match, and operations of the unit may be destabilized. In such a case, the versions for the above three must be matched.
2. This method is used when disc downloading fails.

[Tools to be used]

- * PC with serial port
- * RS-232C straight cable
- * RS-232C I/F jig (GGF1348)
- * 7P FFC (VDA1681)
- * Download program (UFU.exe)
- * Firmware

[Connection]

Connect as follows:



[Procedures]

① Connect the 232C I/F jigs above way.

② Turn on the PC and start the " UFU.exe ".

③ Select the Firmware file. ("sz0" file)

④ Turn the DVD recorder on and start the download program.
" Target Device is connected " is appeared on the screen.

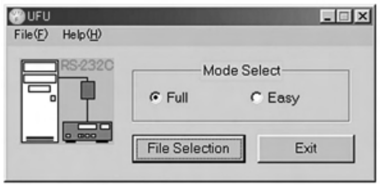
⑤ Select the Communication Speed (Baud Rate)

a) Base Speed	115,200
b) Data Send Speed	115,200

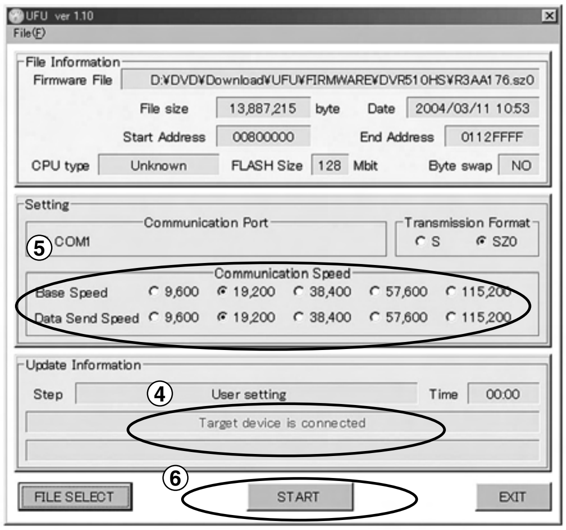
⑥ START

- Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail. In this case, please click "START" again.
- Other factors can be considerd if download fails 3 times or more.
- And it takes about 20 minutes for updating the firmware.

* TUNERCON and IR con program is not downloaded this way, so do disc-download for TUNERCON and IR con.



Mode Select: ● Full ○ Easy



File Information
Firmware File: D:¥DVD¥Download¥UFU¥FIRMWARE¥DVR510HS¥R3AA176.sz0
File size: 13,887,215 byte
Date: 2004/03/11 10:53
Start Address: 00800000
End Address: 0112FFFF
CPU type: Unknown
FLASH Size: 128 Mbit
Byte swap: NO

Setting
Communication Port: COM1
Transmission Format: ○ S ● SZ0

Communication Speed
Base Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200
Data Send Speed: ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

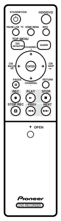
Update Information
Step: User setting
Time: 00:00
Target device is connected

7.1.4 VIDEO ADJUSTMENT FOR SPECIFIC AREA

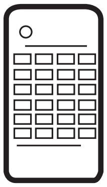
[Purposes]

Depending on the area, if a flicker may appear in a picture received by the tuner, it can be corrected or reduced with this setting.

[Tools to be used]



Remote control unit supplied with the unit (VXX3129)



Remote control unit for servicing (GGF1381)

1. Specific-Channel Setting mode

In this mode, specific settings can be made for up to 12 channels.
For channels that do not have specific settings, the settings of General Setting mode are applied.

[How to enter this mode]

① Select a channel or line input (L1-L3) on which a specific setting is to be made.
② Press the ESC then CHP/TIM keys on the remote control unit for servicing. "General Setting mode" is displayed.
③ Press the DIG/ANA key in General Setting mode. Specific-Channel Setting mode is entered.

[How to exit] Press the ESC key on the remote control unit for servicing to return the Normal mode.

[Note] Setting is in effect only during recording/playback stop.

[Setting examples]

The setting examples in Specific-Channel Setting mode are shown below.
For details on each setting item, see "Table 1: Key operations in Specific-Area Setting mode."

[When specific channel setting have NOT been made]

General setting data

Specific channel setting data

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC           : ON        *
  H Threshold Level  : 12        *
  V Threshold Level  : 10

  EPG EQ             : OFF       *

  RGB Line Mask      : 28        *

Individual  setting  state
  Input  Channel - [    1CH ]
  Sync AGC           : ---
  H Threshold Level  : ------
  V Threshold Level  : ---
```

[When specific channel setting have been made]

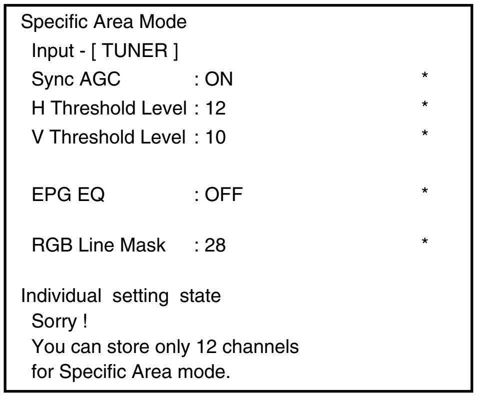
```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC           : ON        *
  H Threshold Level  : 12        *
  V Threshold Level  : 10        *

  EPG EQ             : OFF       *

  RGB Link Mask      : 28        *

Individual  setting  state
  Input  Channel - [    1CH ]
  Sync AGC           :  ON       *
  H Threshold Level  : 14
  V Threshold Level  :  7
```

[Tips]

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (- -).
- If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The setting indicated with an asterisk (*) is the default.
- The channels to be indicated for "Input Channel" are as shown below:
  Line inputs: L1-L3, DV (DV is not valid for specific-area settings.)
  Tuner channels: Channels received by the tuner (channels to be set in Specific-Channel Setting mode, etc.)

[Tips]

- Indication when the maximum number (12) of channels have individual settings
  If a channel that does not have specific settings is currently selected, the indication will be as shown below, and individual data items cannot be set for that channel. To set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.



```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC          : ON          *
 H Threshold Level : 12          *
 V Threshold Level : 10          *

 EPG EQ            : OFF         *

 RGB Line Mask     : 28          *

Individual  setting  state
 Sorry !
 You can store only 12 channels
 for Specific Area mode.
```

[H Threshold Level]
The slice level setting for the horizontal(H)-sync separation circuit can be changed. By your changing the slice level, horizontal sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[V Threshold Level]
The slice level setting for the vertical(V)-sync separation circuit can be changed. By your changing the slice level, vertical sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[Receiver sensitivity setting for an electronic program guide (EPG)]
The sensitivity when receiving an electronic program guide can be selected. Set the sensitivity to "High" only if reception is unstable.

2. General Setting mode

[How to enter this mode]

- To shift from Specific-Channel Setting mode:
  Each time the DIG/ANA key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.

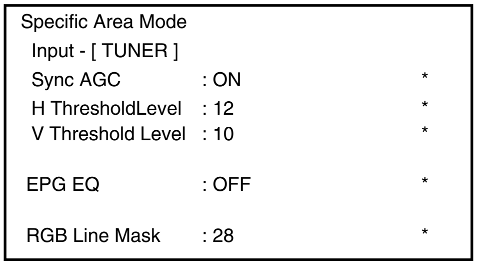
- To shift from Normal mode (recording/playback stop):
  Press the ESC then CHP/TIM keys.

[How to exit] Press the ESC key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 1 (key operations in specific-area setting mode).

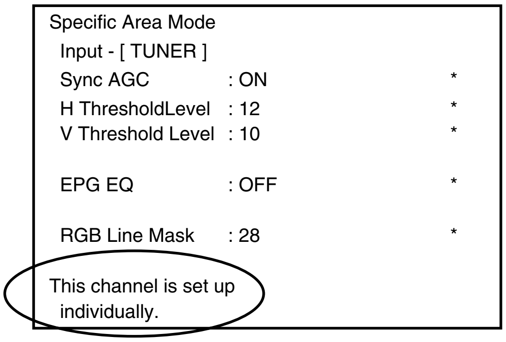
[General Setting mode screen]



```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC          : ON          *
 H ThresholdLevel  : 12          *
 V Threshold Level : 10          *

EPG EQ             : OFF         *

RGB Line Mask      : 28          *
```

*: Setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]



```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC          : ON          *
 H ThresholdLevel  : 12          *
 V Threshold Level : 10          *

 EPG EQ            : OFF         *

 RGB Line Mask     : 28          *

This channel is set up
 individually.
```

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 1: key operations in specific-Area setting mode (1/2)
Key operations in Specific Area Setting mode of the remote control units are shown in the table below
(the keys are of the remote control unit for servicing unless otherwise stated):

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[DIG/ANA]	Switches General setting mode and Specific setting mode.	–	–	○	○
[INPUT SELECT], [CHANNEL +/-] (Remote control unit supplied with this unit)	Switches inputs or channels.	–	–	○	○
[SIDE A], [SIDE B]	Sets SyncAGC.	ON(*) / OFF	ON : The sync level is set to an appropriate value. OFF : Cancel the Sync AGC.	○	○
[Rev ×3], [×3 Fwd]	Sets H Threshold.	0 – 15 (Default : 12)	[Rev ×3] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [×3 Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets V Threshold Level.	0 – 15 (Default : 10)	[Rev CHAPTER SKIP] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [CHAPTER SKIP Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○

Table 1: key operations in specific-Area setting mode (2/2)

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[<<|| STILL STEP], [STILL STEP ||>>]	Sets Line Mask setting at RGB signal is inputted.	22 - 40 (Default: 28)	[<<|| STILL STEP] : Decreasing 1 by 1 in the range 22 to 40. (Cyclic operation) [STILL STEP ||>>] : Increasing 1 by 1 in the range 22 to 40. (Cyclic operation)	×	○
[PLAY]	All channels that have specific setting data will be canceled, and the specific data will be initialized.	–	The General Setting data will not be changed.	○	×
[CLEAR]	Specific-Channel Setting mode: If the currently selected channel has its specific setting, that setting will be canceled. (By canceling the specific setting for that channel, the number of remaining channels that can have specific settings will be increased by one.) General Setting mode: Settings of General Setting mode are initialized.	–	Specific-Channel Setting mode: All specific data are initialized. The General Setting data will not be changed. General Setting mode: All general setting data are reset to default. The specific setting data will not be changed (will be retained).	○	○
[PAUSE]	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).	○	×
[ESC]	To quit Setting mode for a specific area and clear the on-screen display.	–	–	○	○

Notes:
- Each key listed in Table 1 above is active only while the tuner is completely stopped.
- The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

7.1.5 SERVICE MODE

Overview and purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:

[1] First screen : Version, HDD information, etc.
[2] Second screen : ATA/ATAPI debug screen (Writer information)
[4] Fourth screen : VR-recording-related error logs

Each screen has sublevel screens.

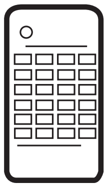
[Note] After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

1. Version information, etc. (First screen)

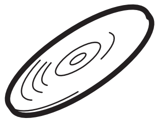
[Purposes]

To check the versions of the system control computer, TUNER microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, results of the simple error rate measuremen, HDD information, and OSD Filter setting

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

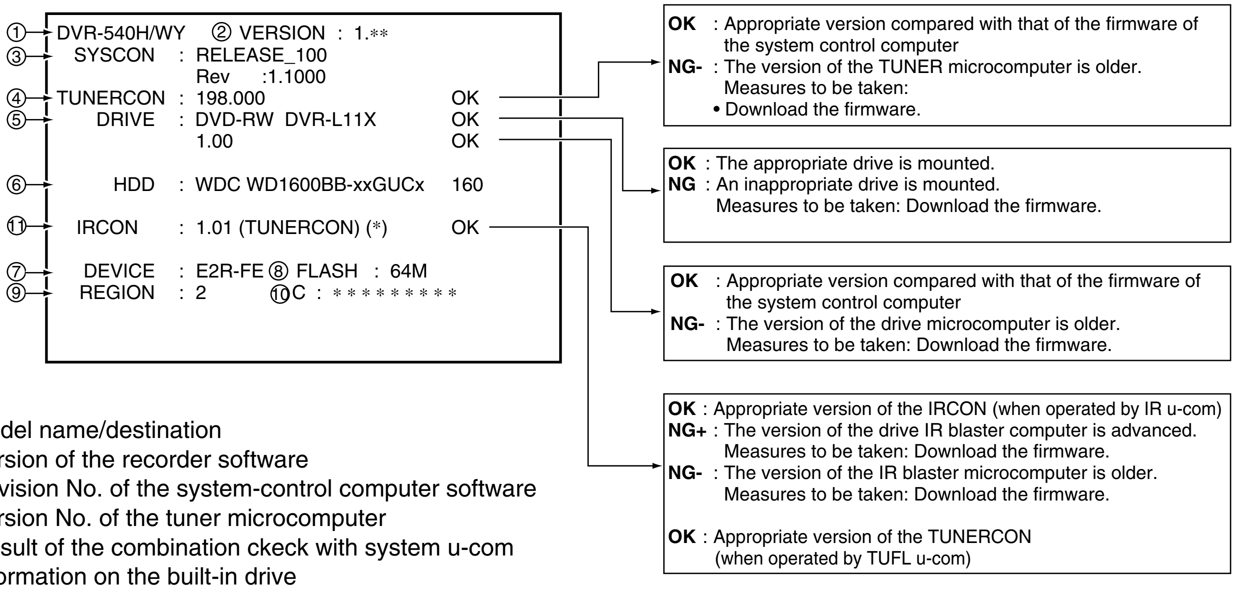
[How to enter] While the GUI screen is not displayed, press the ESC then DISP keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the DIG/ANA key repeatedly until your desired subscreen is displayed. The subscreens change

[How to quit] Press the ESC key.

[Description]

(1) First screen



```
①→DVR-540H/WY    ② VERSION  :  1.**
③→  SYSCON   :  RELEASE_100
                Rev     :1.1000
④→TUNERCON   :  198.000                 OK
⑤→   DRIVE   :  DVD-RW  DVR-L11X        OK
                1.00                    OK

⑥→     HDD   :  WDC WD1600BB-xxGUCx     160

⑪→   IRCON   :  1.01 (TUNERCON) (*)     OK

⑦→  DEVICE   :  E2R-FE ⑧ FLASH  :  64M
⑨→  REGION   :  2       ⑩C  :  *********
```

OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the TUNER microcomputer is older.
Measures to be taken:
• Download the firmware.

OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
Measures to be taken: Download the firmware.

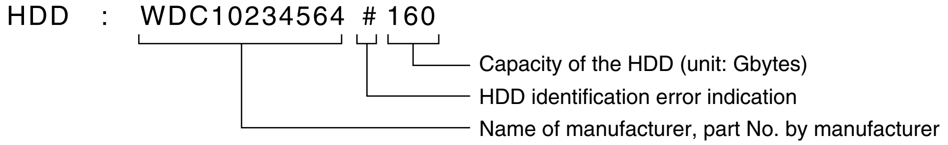
OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the drive microcomputer is older.
Measures to be taken: Download the firmware.

OK : Appropriate version of the IRCON (when operated by IR u-com)
NG+ : The version of the drive IR blaster computer is advanced.
Measures to be taken: Download the firmware.
NG- : The version of the IR blaster microcomputer is older.
Measures to be taken: Download the firmware.

OK : Appropriate version of the TUNERCON
(when operated by TUFL u-com)

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software
④ Version No. of the tuner microcomputer
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type)
⑥ Data of the built-in HDD, capacity of the HDD
⑦ DEVICE information (EMMA type, ES No.)
⑧ FLASH ROM information
⑨ Region No.
⑩ CPRM information (CPRM key No.)
⑪ IR Braster u-com information
(Version when operated by IR Braster u-com)
(*)(TUNERCON when operated by TUFL Con)

• Details on HDD data are described below:


HDD : WDC10234564 # 160
Capacity of the HDD (unit: Gbytes)
HDD identification error indication
Name of manufacturer, part No. by manufacturer

If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	• Check the connection to the ATA connector. • Replace the ATA flexible cable and connector. • Replace the HDD. • Replace the resistor in the ATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 160	• Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 160	"!" represents an HDD-recognition error. • Initialize the HDD or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 160	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

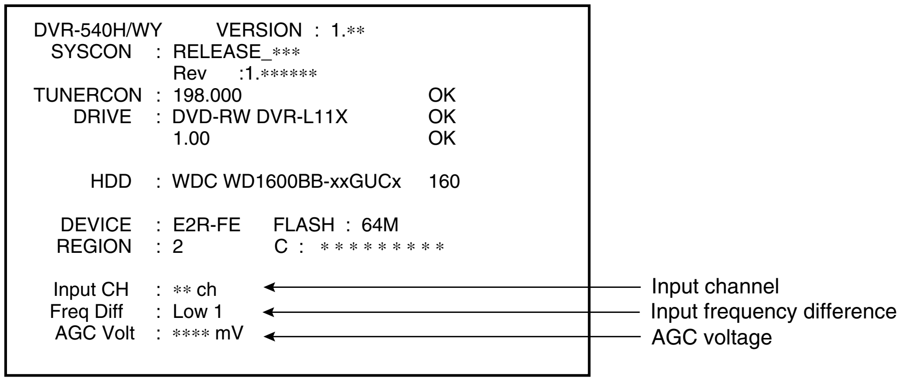
(2) Simple diagnosis of the RF level (Subscreen 1)

[Purposes] To check the RF signal of the U/V tuner by checking the input frequency difference and AGC voltage in this debug mode

[How to enter] While the User Setting display is displayed, press the ESC, DISP, then DIG/ANA keys, in that order.

[How to quit] Press the ESC key.

[Description]



```
DVR-540H/WY        VERSION  :  1.**
  SYSCON   :  RELEASE_***
              Rev     :1.******
TUNERCON   :  198.000                  OK
   DRIVE   :  DVD-RW DVR-L11X          OK
              1.00                     OK

     HDD   :  WDC WD1600BB-xxGUCx      160

  DEVICE   :  E2R-FE       FLASH  :  64M
  REGION   :  2            C  :  *********

Input CH   :  ** ch
Freq Diff  :  Low 1
AGC Volt   :  **** mV
```

Input channel
Input frequency difference
AGC voltage

Subscreen 1

1) Frequency Difference (Freg Diff)

How much tuning is off is monitored, as shown below:

Input Frequency		Display
Faraway		High 7
High (within 200kHz)		High 1~5
Just Tune		Center
Low	within 200kHz	Low 1~5
	over 200kHz	Low 7

2) AGC voltage (AGC Volt)

The gain controlled by the tuner is monitored to infer the input electric field intensity.
(The accuracy of inference differs depending on the product.)

	Field Intensity	AGC VOL
Intense field area (Clear image)	70 dBµ or more	3100 mV or less
Less intense field area (Noise may be generated.)	50 dBµ or more 70 dBµ or less	3100 - 4400mV
Weak field area (Much noise. EPG/VPS/PDC sometimes cannot be obtained.)	30 dBµ or more 50 dBµ or less	4400 mV or more (It is unable to discriminate under the weak field area.)
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	30 dBµ or less	4400 mV or more (It is unable to discriminate.)

Tips:

For good reception, the field intensity must be 50 dBµ or more (AGC Volt 4400 mV or less).
For accurate measurement, use a field intensity meter.

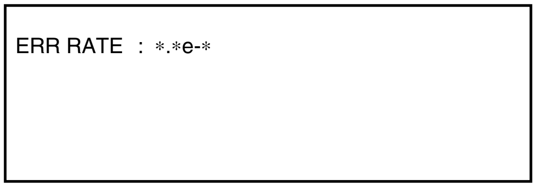
(3) Simple Error Rate Measurement (Subscreen 2)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key twice, in that order.
- While subscreen 1 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Measurement procedures]

① Display subscreen 2.
② Load the Test disc (GGV1025).
③ Judge the results of the error rate measurement by referring to Table 1 on page 89.



```
ERR RATE  : *.*e-*
```

Subscreen 2

[Tips]

During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

Table 1: Thresholds when determining OK or Error

Disc type	Recording mode	Finalized or not finalized	Reference value
DVD-VIDEO	–	–	8.0×10^{-4}
DVD-R	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}
DVD-RW	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}

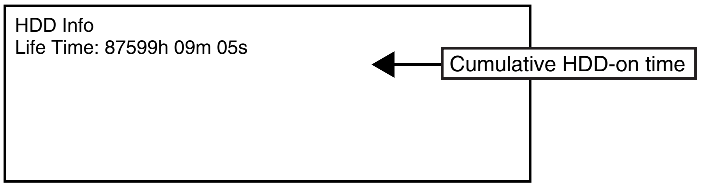
(4) HDD information (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key three times, in that order.
- While subscreen 2 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Mode description]



```
HDD Info
Life Time: 87599h 09m 05s
```

Subscreen 3

[Tips]

- **How the data on cumulative HDD-on time are processed in memory**

  Storage place:

  FLASH ROM

  Timing of referring to the data on cumulative HDD-on time:

  When the power is turned on, fails, the FLASH ROM is referred to.

  Timing of updating the data on cumulative HDD-on time:

  While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- **How to clear the data on cumulative HDD-on time**

  FLASH ROM:

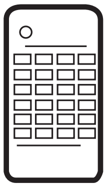
  When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys).

  Notes: • The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
  • The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

(5) OSD FILTER SETTING (SUB screen 4)

[Purpose] Depending on the monitor used, the character flicker on the OSD may stand out.
If a system, such as charavter flicker, appears on the monitor, select the filter response.

[Tools to be used]



Remote control unit for servicing
(GGF1381)

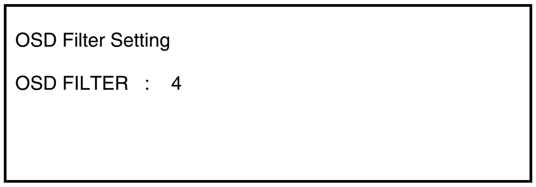
[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key four times, in that order.
- While subscreen 3 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Setting procedures]

① Display subscreen 4.
② Select the setting from the key operation table.



OSD Filter Setting

OSD FILTER : 4

Subscreen 4

[Tips]

As the setting value becomes greater, jitter is reduced on a CRT display. However, as lines for characters appear thick, complex characters may become difficult to read. On the contrary, as the setting value becomes smaller, jitter increases on a CRT display. However, as lines for characters become sharper, complex characters become more legible.

Note: Use the remote control unit for servicing.
Note: A new setting becomes active as soon as it is made. As a new setting is stored in nonvolatile memory, it will be retrieved when the unit it turned on the next time.
Note: After the factory-preset values are downloaded, the setting value for the OSD Filter will be the default value (4).

[(Table 2) Key operation of OSD Filter setting]

Key	Operation	Setting value	Remarks
[Rev x 3], [SPEED+] [x 3 Fwd], [SPEED-]	Changing the setting value for the OSD Filter	0 - 4 (Default value: 4)	[Rev x 3], [SPEED+] : The setting value increases by 1. [x 3 Fwd], [SPEED-] : The setting value decreases by 1.
[CLEAR]	The setting value is reset to default.	–	
[ESC]	To exit the OSD Filter Setting and clear the screen (Appears the tuner screen.)	–	–

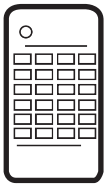
2. ATA/ATAPI Debug Screen (Second screen)

[Purposes]

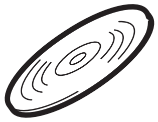
To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

[How to enter]

- While the User Operation display is displayed, press the $\boxed{\text{ESC}}$, $\boxed{\text{DISP}}$, then $\boxed{2}$ keys, in that order.
- While any subscreen of the second screen is displayed, press the $\boxed{\text{DIG/ANA}}$ key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the $\boxed{\text{ESC}}$ key.

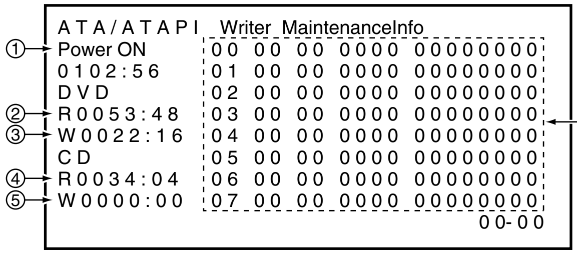
(1) Writer maintenance information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the $\boxed{\text{ESC}}$,$\boxed{\text{DISP}}$ then $\boxed{2}$ keys, then the $\boxed{\text{DIG/ANA}}$ key twice, in that order.

[How to quit] Press the $\boxed{\text{ESC}}$ key.

[Procedures] Update the display by pressing the $\boxed{\text{SEARCH}}$ key while subscreen 3 is displayed.



```
ATA/ATAPI  Writer MaintenanceInfo
Power ON   00 00 00 0000 00000000
0102:56    01 00 00 0000 00000000
DVD        02 00 00 0000 00000000
R0053:48   03 00 00 0000 00000000
W0022:16   04 00 00 0000 00000000
CD         05 00 00 0000 00000000
R0034:04   06 00 00 0000 00000000
W0000:00   07 00 00 0000 00000000
                            00-00
```

Error log for the Writer
(Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing
(This function is not used for this model.)

② If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded.
Perform an LD degradation judgment, using subscreen 4.

[Tips]

MTTF hours for each LD
DVD: 4,700 hours
CD: 11,000 hours

The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the SEARCH key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

[Note on lighting time data for each LD]

Since data on lighting time of each laser diode (LD) are stored in the flash ROM on the MAIN Assy, after the MAIN Assy is replaced, the data will be cleared. However, after the LOADER Assy is replaced, data on lighting time of each LD will be retained in the MAIN Assy. Therefore, before either the MAIN Assy or LOADER Assy is to be replaced, it is recommended that you write down the lighting time data.

(2) LD degration judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

[How to enter]

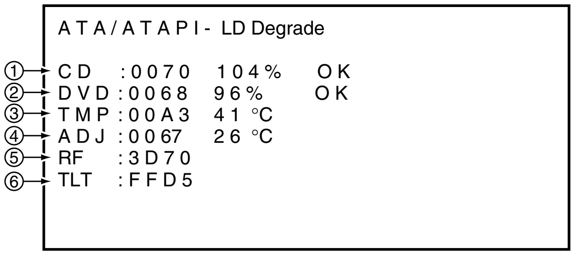
- While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key three times, in that order.

[How to quit] Press the ESC key.

[Notes]

- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25°C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025).
  As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the SEARCH key while subscreen 4 is displayed.
For details on each item and the conditions of updating the values, see Table 2 below.



```
ATA/ATAPI- LD Degrade

① CD  :0070  104%   OK
② DVD :0068   96%   OK
③ TMP :00A3   41 °C
④ ADJ :0067   26 °C
⑤ RF  :3D70
⑥ TLT :FFD5
```

Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition

If the results of degradation of the LDs for CDs and DVDs are both NG, replace the drive.

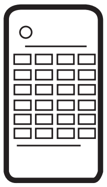
3. VR-Recording-Related Error Logs (Fourth screen)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

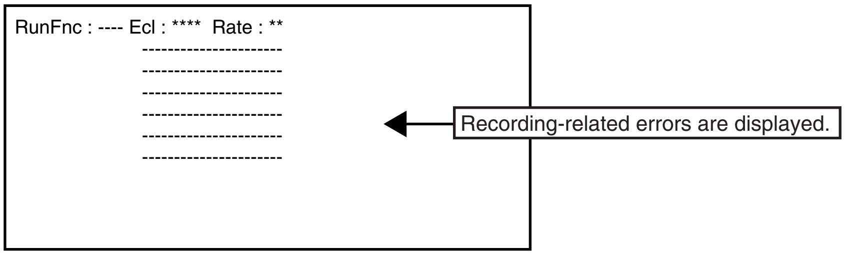
- While the User Operation display is displayed, press the ESC, DISP, then 4 keys, in that order.
- While any subscreen of the fourth screen is displayed, press the DIG/ANA key repeatedly. The subscreens change cyclically.

[How to quit] Press the ESC key.

[Description of each subscreen]

(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err:," as shown below.
  For details on errors, see "Table 1: Description of VR-recording-related errors."

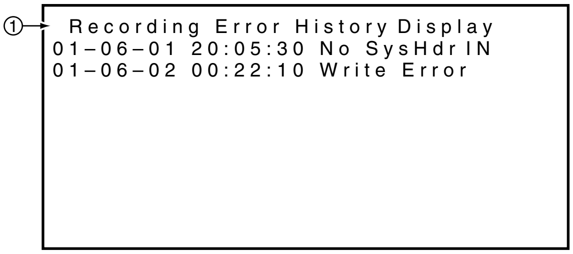


```
RunFnc : ---- Ecl : ****  Rate : **
                  ---------------------
                  ---------------------
                  ---------------------
                  ---------------------
                  ---------------------
                  ---------------------
```

Recording-related errors are displayed.

(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



```
 Recording Error History Display
01-06-01 20:05:30 No SysHdr IN
01-06-02 00:22:10 Write Error
```

① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 11 (These subscreens are not for service use.)

Table 1: Description of VR-recording-related errors

Any error message marked with ∗ is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.

● Error related to MPEG Encoder

Error Message	Description
AVEnc Hang	AVEncoder failed
IN Encode ∗	Changes cannot be made in the process of encoding
No SysHdr IN	System packet is not input periodically
Stm Start NG	Failure to start encoding (reasons not clear)
Stream NG	Inappropriate input stream data
Strm Start NG	Timeout waiting for system packet input at the beginning

● Error related to Drive system

In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Error Message	Description
Bdr Cls NG	Close Border failed
Bdr Opn NG	Open Border failed
BUF Overflow	Overflow of the Stream Buffer
CLS Rzon Fail	Video Mode Close Rzone failure
Drive Hang	The Drive is hung up.
Drv Err	General error of the drive
Drv Hard Err	Abnormality in the drive hardware or firmware
Drv TimeOut	Timeout waiting for drive operation
Fail Repair	Repair failed
Format NG	Format failed
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Mech No Res	No response from the mechanical-control computer
MKB Invalid	MKB reading error
NWA Exhaust	NWA surpassed and impossible to use
OPC NG	OPC failed
PCA Full	PCA has been used up.
Read Err	Reading failed, ECC failed, etc.
ReadOnly DISC ∗	Because some data are invalid, data cannot be written
RMA Full	RMA has been used up.
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Rzn Rsv NG	Reserve RZone failed
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI_B2 Wr Err	Video Mode VTSI BUP Write Error (After Layer Change)
VTSI Wr Err	Video Mode VTSI Write Error
VTSI2 Wr Err	Video Mode VTSI Write Error (After Layer Change)
Write Err	The Drive failed to write and could not be recovered.
May Be PVR	May be +VR disc, but no RSAT
V Final fail	Abnormal process occurred when finalizing Video mode
DLVR trace NG	Close Rzone failed at dual layer disc

RSAT : Reserved Space Allocation Table

● Error related to Dubbing

Error Message	Description
H2D CP SomeNG	Other NG HDD →DVD copy
Mem get NG	Video Mode Copy Memory has not ensured.
Strm TransfNG	Video Mode Copy Stream Transfer NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC CopyCancel	Video Mode Copy Copy Cancel
VC FlushC NG	Video Mode Copy Flush Cache NG
VC HDD C Err	Obtaining Video Mode Copy HDD Cell information failed
VC HDD Inf NG	No information on Video Mode Copy HDD
VC HDD Info NG	Format failed
VC Idling NG	Video Mode Copy idling NG
VC Pck Anl NG	Analizing Video Mode Copy Pack failed

● Error related to Dubbing (continued)

Error Message	Description
VC Transf Stp	Video Mode Copy Transfer Stop
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC VOBU SizeE	Video Mode Copy VOBU Size NG
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
V2H APP FL NG	VR → HDD APP FLG is OFF
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H SRC Prot	VR →HDD copy prohibitted material
V2H Unknown	VR →HDD other NG
V2H VOBU TMNG	VR →HDD Play back time of each VOBU is different
V2H V Reso NG	VR →HDD Video resolution NG
H2D CP NoSpac	HDD →DVD insufficient free space for copy
H2D TO HDDRD	HDD →DVD (VR) TimeOut at HDD playing side
H2D TO SPRO	HDD →DVD (VR) TimeOut at internal processing
H2D TO DVDWR	HDD →DVD (VR) TimeOut at HDD recording side

● Other Errors

Error Message	Description
Abort *	Cancellation
Already open	Extension file is already opened.
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
BUG	Some bugs
BusReset Done	Bus Reset has been excecuted.
Cell Close NG	Cell Close NG
CPRM IC NG	Inappropriate CPRM IC
Dir Depth Err	Tree of Directory is too deep.
Disc Full	No further data can be written because the disc is full.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
DRAM NG	Abnormality in access to the Work DRAM
Drive Destroy	The drive has crashed.
EncModul Hang	Encoder routine is hung up.
F Alrdy Exst	Extension file is already exist.
File cansel	Extension file is canseled.
FileNot Exist	Extension file is not exist.
Format Excec	Formatting has been executed.
Invalid Disc *	The disc cannot be recognized.
Invalid Param *	Invalid parameter
Invalid TMVMG	Invalid TMP_VMGI content
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid VTSI	VTSI information of +VR is unusual.
Irr Action *	Incorrect action
MKB REVOKED	Error in gaining data
Limit Over *	Standard maximum limit exceeded
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
No Video	No video input (not locked)
Now Busy *	In the process of the emergency processing
NV Pck DMA Er	Inappropriate NaviPack DMA
NV Pck MK Err	Error in creating NaviPack
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
Over Heat	Abnormal temperatute
PARAM NO ACCP	Recording parameter is not matched.
Process Over	Process is overfull.
Protect Src *	Source to be recorded is copy-protected.
Rec Pause *	No operation permitted during recording pause
Relocation Do	VR-recording data was relocated

● Other Errors (continued)

Error Message	Description
Repair Excec	Repairing has been executed.
Something *	Undetermined error
SRAM NG	Abnormality in access to the backup work SRAM
Status NG *	Abnormality in change of statuses
SW PVR	Switch to +VR playback process
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
VBR-SRAM NG	Abnormality in VBR SRAM
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
V Ext TY NG	Type NG
Virgin DISC	Virgin Disc
VOBU Info NG	Inappropriate VOBU information
WaterMark Det	Watermark detected
WM Cracked	WM Cracked
Param Short	Editting Error (Clear A-B)
Invalid VRMI	Information of +VR is NG. (VRMI)

● Error related to HDD

Error Message	Description
Do nothing	Do nothing for demand.
ESFSYS CORUPT	easyfsys error
ESFSYS INIT	easyfsys initializing
HDD Buff High	High-level process executed for the HDD Buffer
HDD DEF DONE	HDD deflag finished
HDD DEF ERR	HDD deflag error
HDD Destroy	HDD is not recognized on the bus.
HDD INFO BAD	Incorrect HDD Management Data
HDD Initialize	HDD initialized
HDD IRRG POFF	Abnormal power off
HDD MBR NG	Inconsistent MBR data
HDDReset Done	HDD Reset executed
HDD ROMSUM NG	Rom-code check sum NG
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD SMART NG	Inappropriate HDD SMART
HDD Trans Err	DMA error in HDD copy transfer
HDD unauthor	Inconsistent HDD serial No.
HDD Zero WR	MBR was witten
Task No Activ	Task has not been activated.
TT Rec Over	Title recording time full
HDD WRONG TGT	Invalid HDD target No. is directed.
extHDD Ignore	External HDD is dismounted.
HDD PFile NG	Program file installed in HDD is NG.
HDD DEL TT	Delete the title by HDD recovery.
HDD DEL PL	Delete the dubbing list by HDD recovery.
HDD DEL OC TT	Delete the title moving on the way inside HDD

● No Error

Error Message	Description
Non Err *	Normal

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

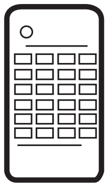
7.1.6 DV SERVICE MODE

1. DV debug

[Purpose]

To check whether communication between a DV device and the unit is normal when a DV device is connected

[Tools to be used]



Remote control unit for servicing (GGF1381)

- DV device
- DV cable

[How to enter] Press the ESC , DISP then 3 keys, in that order.

[How to quit] Press the ESC key.

[Mode description]

```
①→ (DV/1394) InitDV:OK InitVE:OK AV:02 DV:01

②→ [Recorder] GUID:00E0360006100001  IRM
③→ iPCR:C03F0000  oPCR:0000007A
④→ [DV]       GUID:0080880303480E96
⑤→ VN:VICTOR    MN:GR-D50K
⑥→ TM:C3 TS:75 CT:32 WP:01 PS:FF OS:00
⑦→ CA:A000002020 CV:FF MD:VTR
⑧→ [DVdecode:Yes]                    LineSys:525-60
⑨→ TC:00h20m35s    RD:02/02/05 RT:10h34m50s
⑩→ ASPECT:4:3       CGMS:000000 APSTB:00 DEC:525-60
⑪→ SF:32KHz QU:12bit AMODE:4) Stereo
```

Boldface alphanumerics : Fixed indications
Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	InitDV	Whether the initialization of UPD72893B(1394 LINK and DV codec IC) has been completed (OK) or not (NG)	If NG is displayed, it is considerd the communication failure to UPD72893B.
	InitVE	Whether the initialization of ADV7172 (Video Encoder for DV specific) has been completed (OK) or not (NG)	If NG is displayed, it is considerd the communication failure to ADV7172.
	AV	Number of AV devices recognizing connection	Identification number of AV devices including D-VHS, Digital Tuner, etc other than DV devices.
	DV	Number of DV devices recognizing connection	If the number does not become 01 even if a DV device is connected, identification of that device fails.
②	GUID	GUID set in ConfigROM of the unit	GUID : Global Unique ID (Specific ID for DV devices) If the unit is ROOT (IRM), IRM is displayed at the side position of GUID display.

No.	Item	Description	Remarks
③	iPCR	iPCR value of the unit	
	oPCR	oPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connectd DV device is ROOT (IRM), IRM is displayed at the side position of GUID display.
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the model name may not be set in ConfigROM.)
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Write-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/Vtr mode data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV.
	LineSys	Input Line System setting	
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when the tape is played in forward direction. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch 2, bits 3-2: Audio ch 1, and bits 1-0: Video)	*CGMS (Copy Generation Management System): The two-digit codes added to broadcast programs represent the following: 00: Copy freely, 10: Once copy, 11: Never copy
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	

2. Simple Diagnosis of DV

Symptoms		Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for DV input	1	DV ①	Check the initDV indication: OK: Initialization of DV related LSI (IC102, IC108) appropriately completed. NG: Initialization of DV related LSI (IC102, IC108) has not been completed properly. Defective communication with DV related LSI (IC102, IC108) and Host u-com (IC1001)	Defective IC102(1394Link & DVcodec)/ IC108(1394PHY), improper connection between IC102 / IC108, defective soldering, defective power supply, etc.
	2	DV ①	Check the number of DV devices when one DV device is connected to the recorder: 01 : The connected DV device is correctly identified. Other than 01 : The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC108(1394PHY), defective cables, an IEEE 1394 device other than the DV device connected.
No picture nor sound for DV input	1	DV ⑧	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC102(1394Link & DVcodec), defective soldering, defective power supply, etc.
	2	DV ⑩	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective source device defective IC102(1394Link & DVcodec), IC108(1394PHY) **Note:** As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	1	DV ⑩	Check CGMS:	Recording cannot be performed for a copy-protected source.
No sound for DV input	1	DV ⑪	Check SF: 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.
No picture for DV input	1	DV ①	Check the initVE indication: OK: Initialization of DV specific VideoEncoder (IC101) appropriately completed. NG: Defective communication with DV specific VideoEncoder (IC101) and HOST u-com (IC1001). Initialization of DV specific VideoEncoder (IC101) has not been completed properly.	Defective IC101(DV specific VideoEncoder), defective soldering, defective power supply, etc.

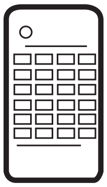
7.1.7 EPG SERVICE MODE

[Purposes]

Reasons for the following malfunctions can be inferred by checking the conditions for obtaining the past EPG data:

① EPG data cannot be obtained.
② Some EPG data obtained are missing.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter] • Press the ESC, DISP, 7 keys, in that order.

[How to quit] Press the ESC key.

[Description of the mode]

1. Summary screen

```
     0         1         2         3         4
     012345678901234567890123456789012345678901234567
  00 (EPG EURO)
  01 Next Data  Download Time : 14:00
  02            Duration      : 01h30m
  03 Gemster Data  Fail Count  : 00
  04
  05
  06
  07 EPG Data Receive Err Summary
  08 Date   Start  End   MD   CH  RcvPkt   TotalErr
  09 03/31 13:00 13:30 DL   03  001853   000000
  10 03/31 09:00 11:00 DL   03  001192   000000
  11 03/31 08:00 08:05 HS   --  000645   000000
  12 03/31 00:00 00:00          000000   000000
  13 03/31 00:00 00:00          000000   000000
  14 03/31 00:00 00:00          000000   000000
```

Lines 01-02	The next download starting time for the EPG data is displayed. Next Data Download Time: Starting time Duration: Duration required for acquiring the EPG data	
Lines 03	The Gemster EPG data cannot be found. Number times of Host Scan and Schedule Download, DT models only (Always 00 except DT model)	
Lines 09-14	The 6 latest error logs when EPG data were received are displayed, with the latest one at the top.	
	Date	: Month/day when reception started
	Start	: Time when reception started
	End	: Time when reception ended
	MD	: Method for acquiring the EPG data (HS: Host scanning process, DL: Downloading process of the EPG data)
	CH	: Data-receiving channel
	RcvPkt	: Total number of received packages. A number 999,999 or greater is displayed as "999999."
	Total Err	: Total errors during reception. The sum of Hamming Err, Trans Err and InvLine Err numbers indicated on the Detail screen. A number 999,999 or greater is displayed as "999999."

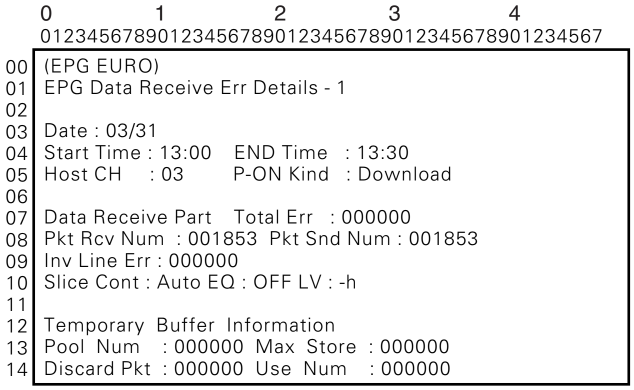
[Tips] In a case where only "HS" is displayed in the MD column of the logs, the host channel has not been found. It is necessary to check the country and postal-code settings in the user settings.

2. Detail screen

[How to enter] Press the DIG/ANA key while the Summary screen is displayed. Up to 6 detail screens (1 to 6) are displayed, one each time the DIG/ANA key is pressed. Each detail screen 1 to 6 corresponds with the EPG reception error logs from the top on the Summary screen.

[How to quit] Press the ESC key.

[Description of the Detail screens]



```
    0         1         2         3         4
    01234567890123456789012345678901234567890123456
00  (EPG EURO)
01  EPG Data Receive Err Details - 1
02
03  Date : 03/31
04  Start Time : 13:00    END Time   : 13:30
05  Host CH    : 03       P-ON Kind  : Download
06
07  Data Receive Part     Total Err  : 000000
08  Pkt Rcv Num  : 001853  Pkt Snd Num : 001853
09  Inv Line Err : 000000
10  Slice Cont : Auto EQ : OFF LV : -h
11
12  Temporary  Buffer  Information
13  Pool  Num    : 000000  Max  Store  : 000000
14  Discard Pkt  : 000000  Use  Num    : 000000
```

Line	Display item	Description	Remarks
Line 01	EPG Data Receive Err Details-X	The rightmost figure represents the number of the current detail screen. This number corresponds to the order of the EPG reception error log from the top.	
Lines 03-05, Reception conditions	Date Start Time END Time Host CH P-ON Kind	: Month/day when reception started : Time when reception started : Time when reception ended : Data-receiving channel : Methods for acquiring the EPG data (host scanning and downloading)	Only during initialization, host scanning is automatically executed to find the host broadcast.
Lines 07-10, details on errors during reception	Total Err	: Total numbers of errors during reception. The total number of Hamming Err, Trans Err and InvLine Err indicated on the Detail screen. A number 999,999 or greater is displayed as "999999."	Total Errors: If the total number of errors reaches two digits or greater, it is likely that EPG data acquisition failed. Display subscreen 1 of the first screen and check the electric field intensity from the AGC level.
	Pkt Rcv Num Pkt Snd Num	: Total number of received packages. A number 999,999 or greater is displayed as "999999." : Total number of packages that were sent to the application program among all the received packages. A number 999,999 or greater is displayed as "999999."	If the total number of received packages is 0, it is likely that the country and postal-code settings are wrong.
	InvLine Err	: Total number of errors that were generated by receiving data from invalid lines. A number 999,999 or greater is displayed as "999999."	
	Slice Cont	: Slice level control Auto-Tu Con, Manual - Syscon.	
	EQ	: Equalizer setting (ON, OFF)	
	LV	: Slice level (10~30 hex) (Only when the slice Cont is Manual.)	

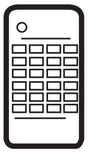
Note: The data on lines 12-14 are for software development, not for service use.

7.1.8 AGING MODE

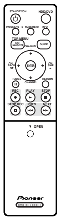
[Purposes]

If symptoms regarding recording/playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

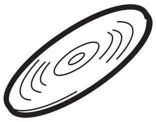
[Tools to be used]



Remote control unit for servicing (GGF1381)



Remote control unit supplied with the unit (VXX3129)



Commercially available, recordable DVD-R/+R and DVD-RW/+RW/-RAM discs

[Notes]

- When aging for the DVD-RW/+RW/-RAM and HDD is executed, all recorded data on them will be erased.
- Commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

① Press the DVD key to switch to DVD.
② Load a recordable disc.
③ Select the input function of a recordable source.
④ After disc detection is performed, press the ESC then REP.B, and then PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished.
- If the tray is being opened/closed: The unit stops after the tray is opened/closed.

(aging for ±RW/-RAM only)

[Description of operation] **Aging for the DVD-RW/DVD-R**

Aging for the DVD-RW/+RW/-RAM	Aging for the DVD-R/+R
During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes <DVD-RW> The initialization process in step 3 follows the setting specified in "Setting of the main unit--Recording--Auto initialization of a DVD-RW." <DVD+RW> The initialization process in step 3 is the same as that described in "Disc setting--Initialization--Initialization of a DVD+RW." <DVD-RAM> In the initialization process in step 3, physical formatting is performed, if required. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ② the tray closes, disc detection is performed, <DVD-R> In step 2, if the disc is judged to have recorded up to 99 titles, the operation stops at that point. <DVD+R> If the disc is judged to have recorded up to 49 titles, the operation stops at that point. On the FL display, the number of loops is retained. On the OSD display, the error indication is retained. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

[Aging for the HDD]

[How to enter]

① Press the HDD key to switch to HDD.
② Press the ESC key then the REP.B, and then the PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.
① Erasure of all the memory data from the HDD
② Recording for 60 minutes
③ Playback for 60 minutes

* *Take catution as the all recorded data of HDD is deleted.*

[Tips]

During Aging, the number of loops is indicated on the FL display, as shown below.
[AGING 0001]

If an error is generated, the aging operation stops.

Note:

Indications on the FL display are retained, and this information is also retained as an OSD.

7.1.9 HDD CHECK MODE

How to diagnose failure of the hard disc drive (HDD)

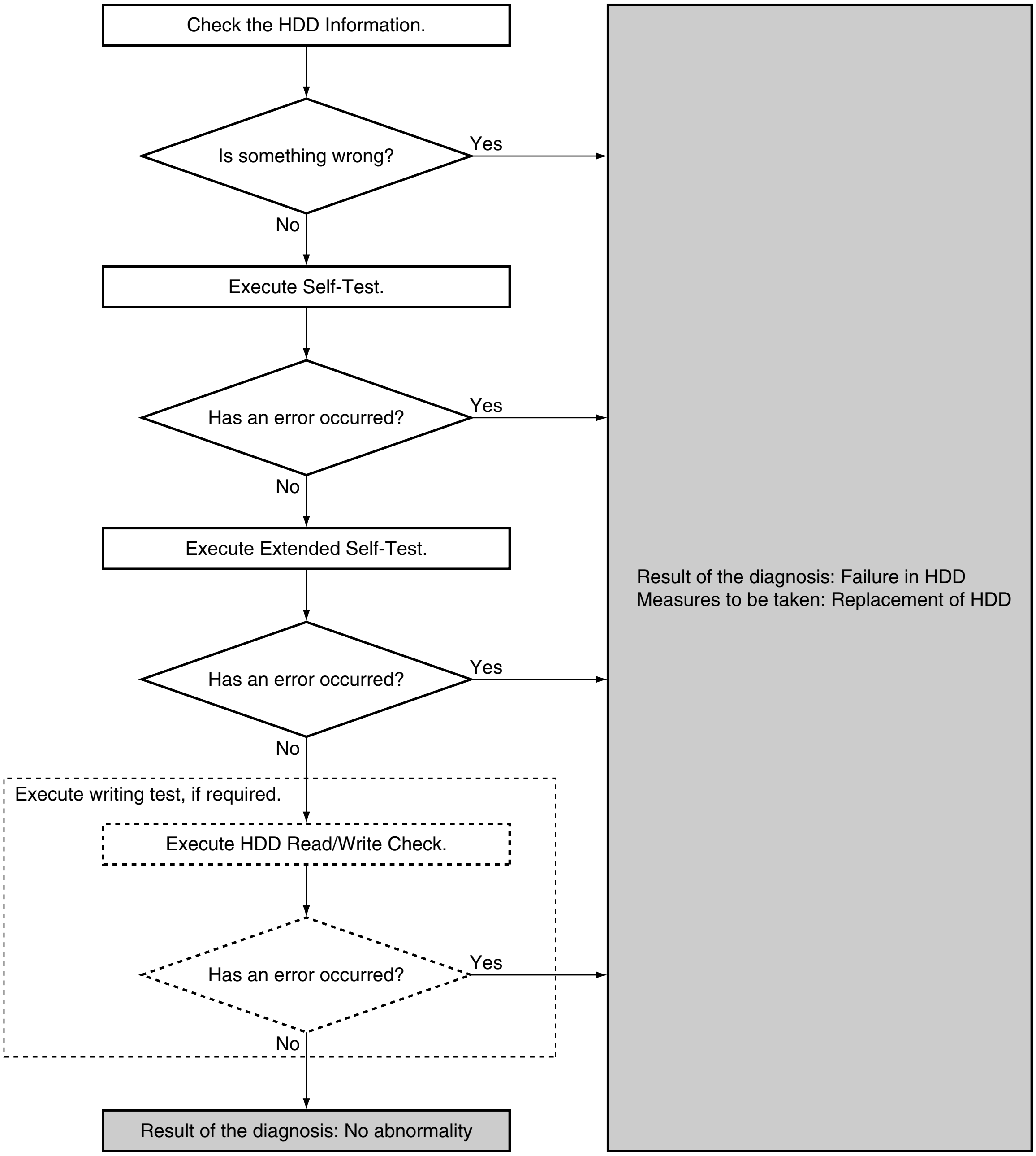
Purpose:
With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:
(1) HDD Error
(2) Failure in HDD recording or playback
(3) HDD not recognized

Tool to be used:
Remote control unit for servicing (GGF1381)

1. Flow of HDD diagnosis

(1) Flowchart of HDD diagnosis


Check the HDD Information.
Is something wrong?
Yes
No
Execute Self-Test.
Has an error occurred?
Yes
No
Execute Extended Self-Test.
Has an error occurred?
Yes
No
Execute writing test, if required.
Execute HDD Read/Write Check.
Has an error occurred?
Yes
No
Result of the diagnosis: No abnormality
Result of the diagnosis: Failure in HDD
Measures to be taken: Replacement of HDD

(2) Overview of the diagnosis items

HDD Information	This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.
SELF TEST	This is a simplified diagnosis for the HDD. A serious failure in the HDD can be detected with this test. Time required for testing: Approx. 60 sec.
EXTENDED SELF TEST	This is a reading test across all sectors of the HDD. Data recorded on the HDD will not be erased, because no writing operation is performed. Time required for testing: Approx. 2 hours/160 GB
HDD Read / Write Check	This is a writing, reading, and comparing test across all sectors of the HDD. **All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.** Time required for testing: Approx. 6.4 hours/160 GB

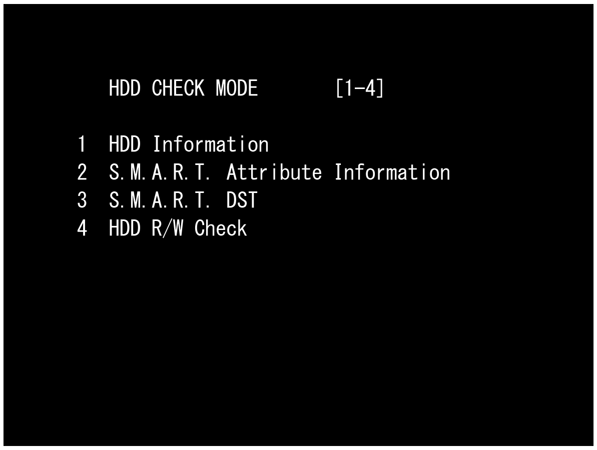
2. How to start or terminate the diagnostic program

How to start/terminate the diagnostic program

Use the remote control unit for servicing.
How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.
How to terminate: Press the "ESC" key.
Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.
The status of the unit recommended during diagnosis is as follows: All stop, no timer recording (including auto-recording), and Input selection to L1-L3.

3. Diagnosis procedures

① Display the menu on the screen.
The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"-"4" on the remote control unit for servicing.



```
    HDD CHECK MODE       [1-4]

 1  HDD Information
 2  S.M.A.R.T. Attribute Information
 3  S.M.A.R.T. DST
 4  HDD R/W Check
```

Tests to be executed

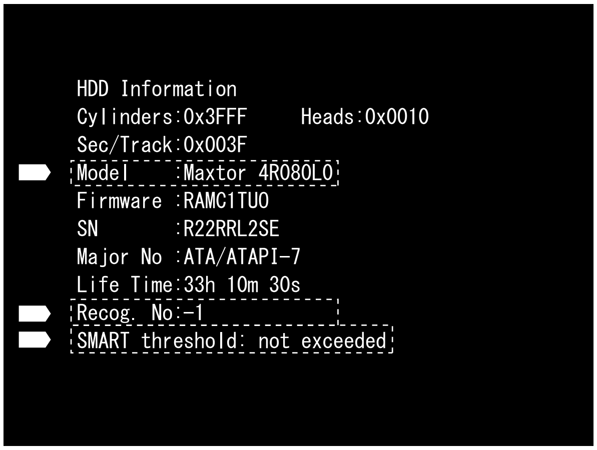
① HDD Information:
Check of the HDD information

② S.M.A.R.T. DST:
Executing a simplified test or a reading test of all data

③ HDD R/W Check:
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

② Check the HDD information.
Press the "1" key on the remote control unit for servicing. Check the following data:
Model: Is the correct model name of the HDD displayed?
Recog. No: Is a positive value displayed?
SMART threshold: Is "not exceeded" displayed?



```
HDD Information
Cylinders:0x3FFF     Heads:0x0010
Sec/Track:0x003F
Model    :Maxtor 4R080L0
Firmware :RAMC1TU0
SN       :R22RRL2SE
Major No :ATA/ATAPI-7
Life Time:33h 10m 30s
Recog. No:-1
SMART threshold: not exceeded
```

Detailed description

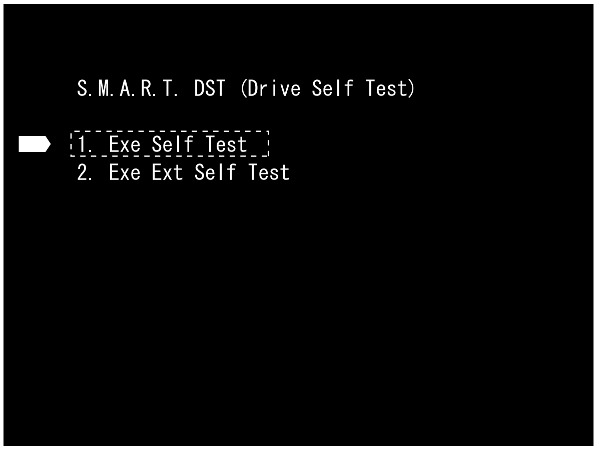
① Model:
For the correct model name, refer to the display of the unit.

② Recog. No:
Positive value: The HDD has been authenticated.
Negative value: The HDD has not been authenticated.

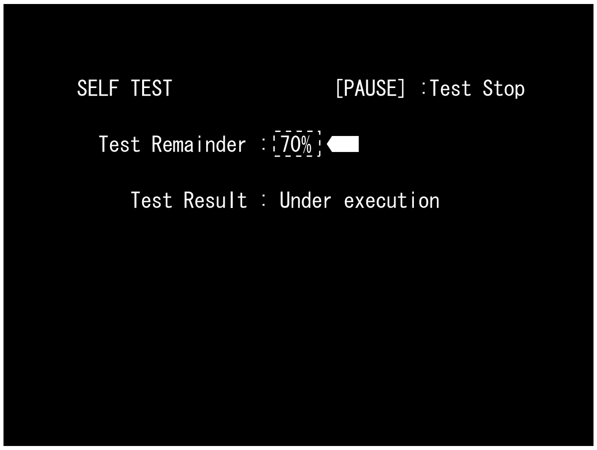
③ SMART threshold:
exceeded: The HDD has come to the end or near the end of its service life.
not exceeded: The HDD has not reached the end of its service life.

To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.
Press the "3" key on the remote control unit for servicing while the menu screen is displayed.
When the following screen is displayed, press the "1" key to start the Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



```
SELF TEST              [PAUSE] :Test Stop

  Test Remainder : 70%

     Test Result : Under execution
```

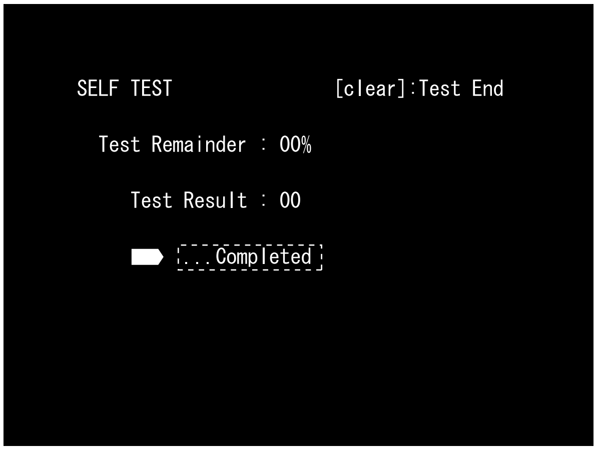
The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.
Check whether or not an error has occurred after the test is finished.

Diagnosis results

- Without an error: ". . . Completed" is displayed.
  Then, proceed to the Extended Self-Test.
- With an error: ". . . Error" is displayed. Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

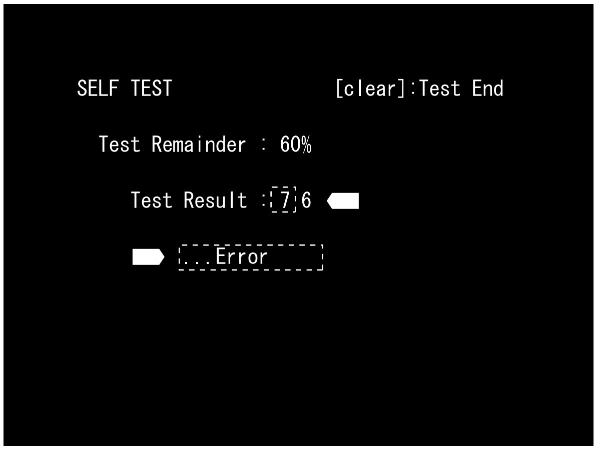
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST              [clear]:Test End

  Test Remainder : 00%

     Test Result : 00

         ...Completed
```

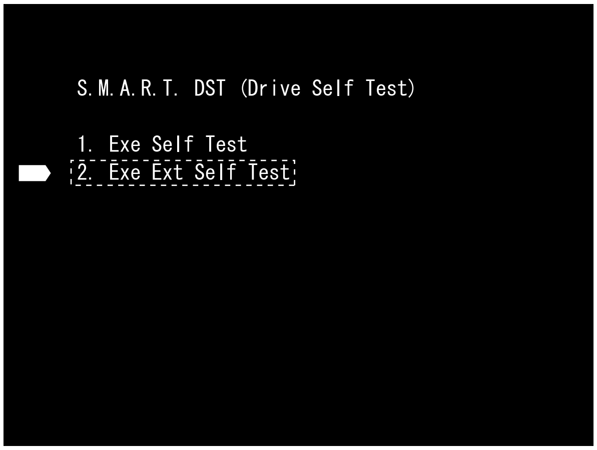
Example: With an error



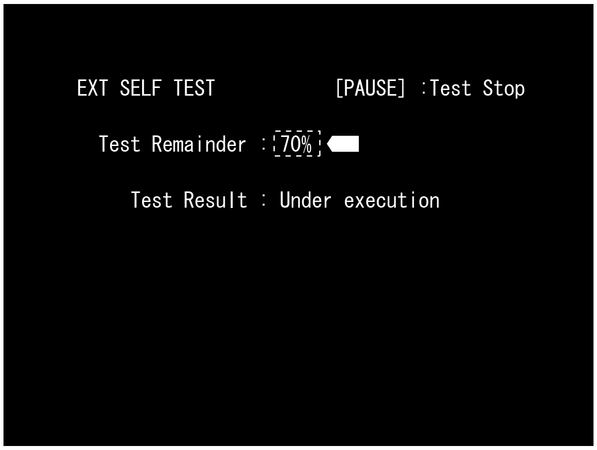
```
SELF TEST              [clear]:Test End

  Test Remainder : 60%

     Test Result : 76

         ...Error
```

To return to the menu screen, press the "Clear" key.

④ Execute the Ext (Extended) Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



```
EXT SELF TEST          [PAUSE] :Test Stop

  Test Remainder : 70%

     Test Result : Under execution
```

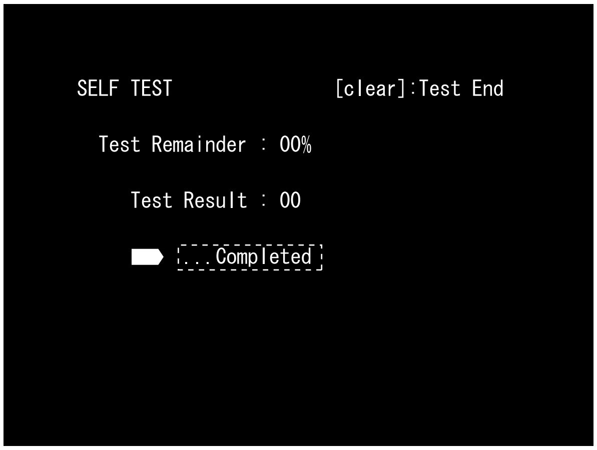
Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing.
The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

Diagnosis results

- Without an error: ". . . Completed" is displayed.
  If no error occurs up until this stage, HDD operations are normal except for writing operations.
  If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
  If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.
  Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Ext Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

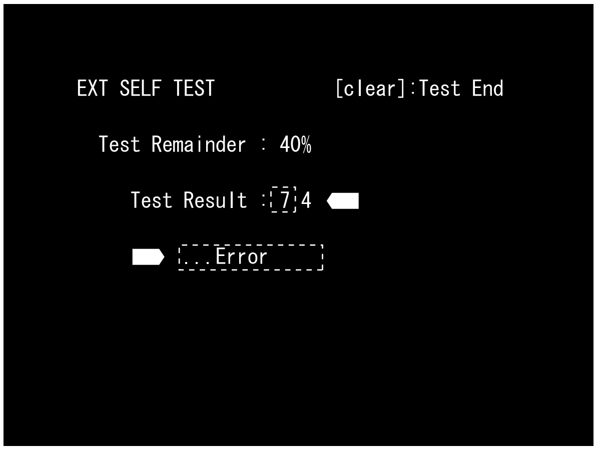
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST               [clear]:Test End

  Test Remainder : 00%

     Test Result : 00

     ...Completed
```

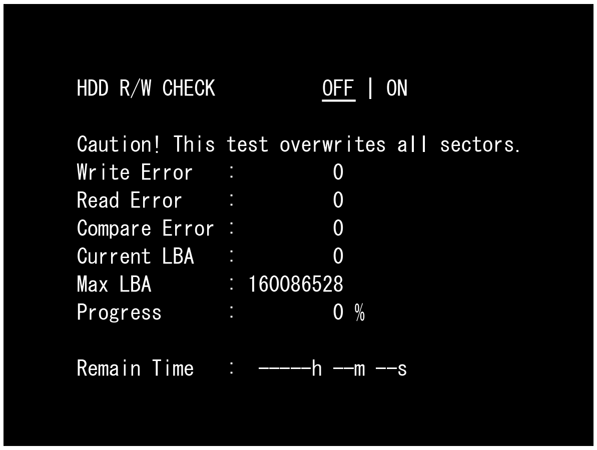
Example: With an error



```
EXT SELF TEST          [clear]:Test End

  Test Remainder : 40%

     Test Result : 74

     ...Error
```

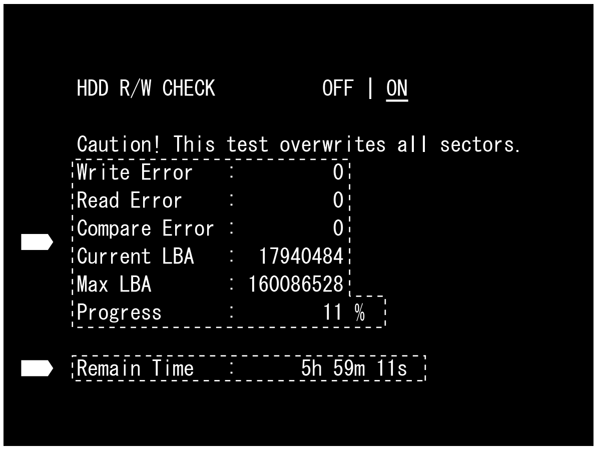
To return to the menu screen, press the "Clear" key.

⑤ Execute the HDD R/W Check.
Before executing this test, **be sure to obtain your client's consent for erasure of HDD data**.
Press the "4" key while the menu screen is displayed then the "SKIP ►►I" key to start the HDD R/W Check.
To stop executing the test (OFF) while it is in progress, press the "SKIP I◄◄" key.



```
HDD R/W CHECK          OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :         0
Max LBA       : 160086528
Progress      :         0 %

Remain Time   :  -----h --m --s
```

The display on the left indicates the progress of the test.
The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.



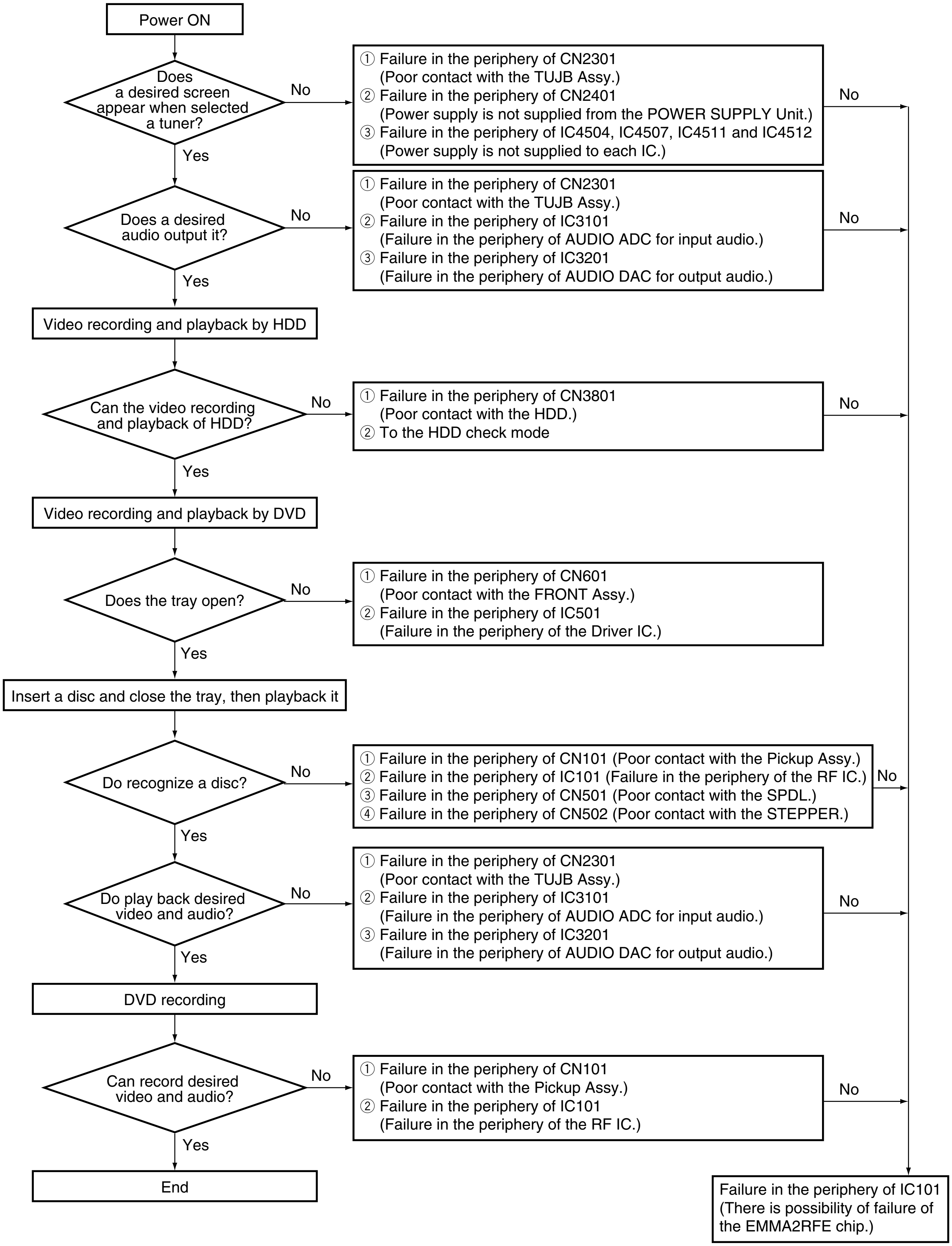
```
HDD R/W CHECK          OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :  17940484
Max LBA       : 160086528
Progress      :        11 %

Remain Time   :      5h 59m 11s
```

Detailed description on each item on the screen
- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.
  Estimated time: 6.4 hours/160 GB

Diagnosis results
- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

7.1.10 DIAGNOSIS OF THE MAIN ASSY


Power ON
Does a desired screen appear when selected a tuner?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of CN2401 (Power supply is not supplied from the POWER SUPPLY Unit.)
③ Failure in the periphery of IC4504, IC4507, IC4511 and IC4512 (Power supply is not supplied to each IC.)
No
Yes
Does a desired audio output it?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
Video recording and playback by HDD
Can the video recording and playback of HDD?
No
① Failure in the periphery of CN3801 (Poor contact with the HDD.)
② To the HDD check mode
No
Yes
Video recording and playback by DVD
Does the tray open?
No
① Failure in the periphery of CN601 (Poor contact with the FRONT Assy.)
② Failure in the periphery of IC501 (Failure in the periphery of the Driver IC.)
Yes
Insert a disc and close the tray, then playback it
Do recognize a disc?
No
① Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
② Failure in the periphery of IC101 (Failure in the periphery of the RF IC.)
③ Failure in the periphery of CN501 (Poor contact with the SPDL.)
④ Failure in the periphery of CN502 (Poor contact with the STEPPER.)
No
Yes
Do play back desired video and audio?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
DVD recording
Can record desired video and audio?
No
① Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
② Failure in the periphery of IC101 (Failure in the periphery of the RF IC.)
No
Yes
End
Failure in the periphery of IC101 (There is possibility of failure of the EMMA2RFE chip.)

7.1.11 NOTE ON REPLACEMENT OF THE SDRAM

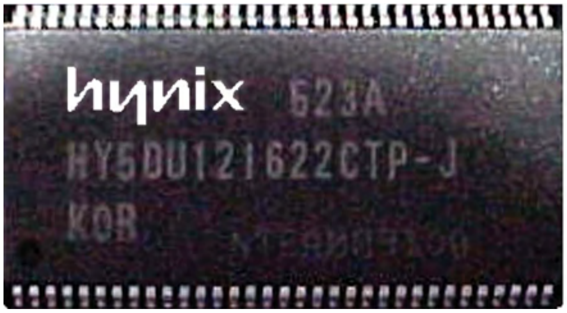
Note when replacing the SDRAM

When replacement of the SDRAM (IC1201 or IC1221) on the MAIN Assy is required, identify the manufacturer of the SDRAM.
If the SDRAM that needs replacement was manufactured by HYNIX, both IC1201 and IC1221 must be replaced at the same time.
SDRAMs for service are manufactured by SAMSUNG.

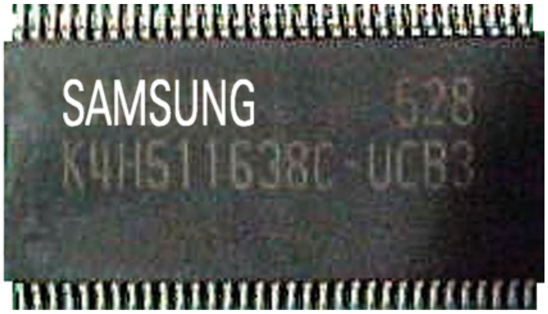
• How to identify the manufacturer

Confirm the name of the manufacturer stamped on the surface of the part.

By HYNIX (replacement of both SDRAMs required)



By SAMSUNG (replacement of only the defective SDRAM possible)



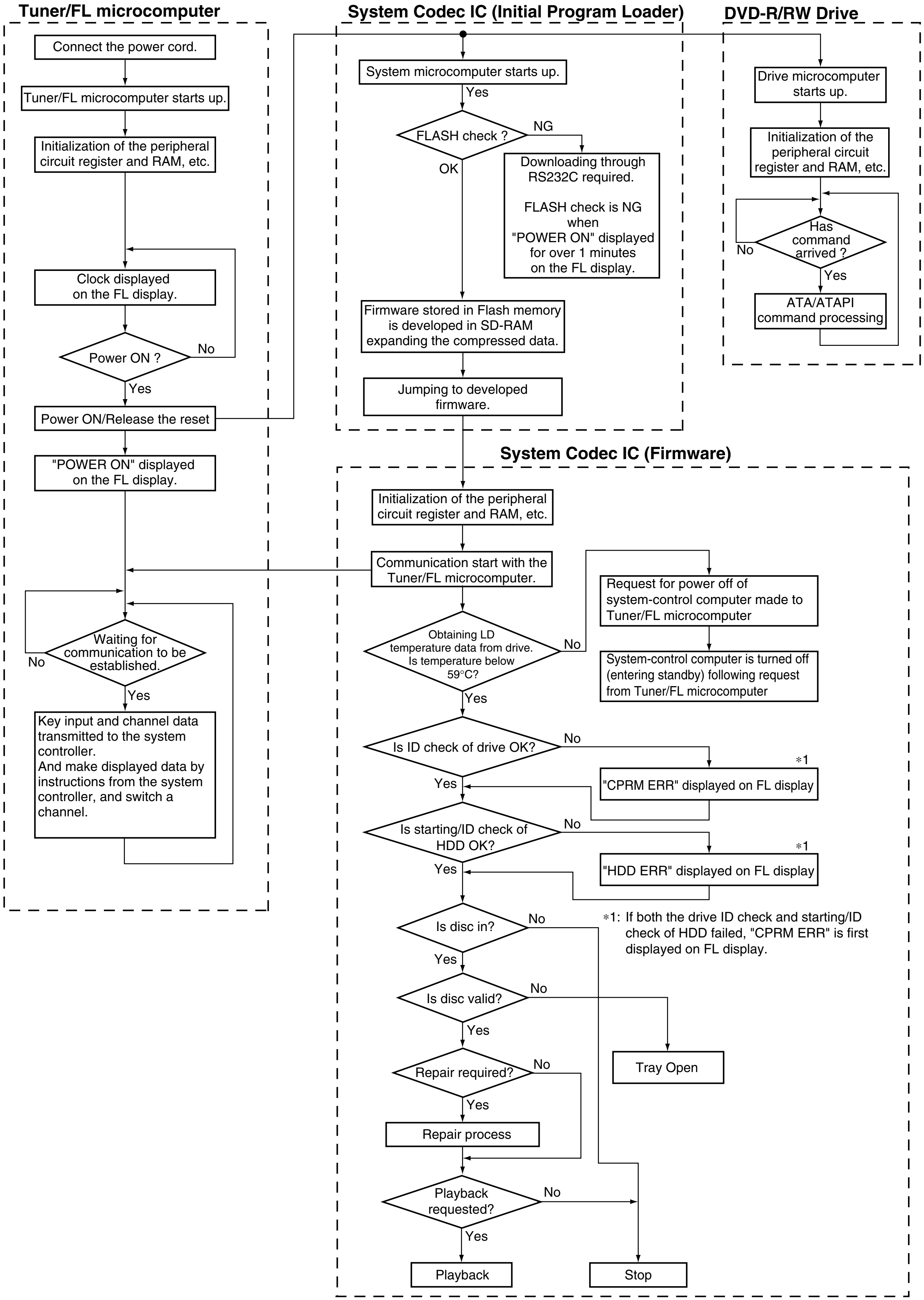
• Measures to be taken

① If the SDRAM that needs replacement was manufactured by HYNIX:
Replace both IC1201 and IC1221 at the same time.
② If the SDRAM that needs replacement was manufactured by SAMSUNG:
Replacement of only the defective SDRAM (IC1201 or IC1221) is possible.

• Possible malfunctions

If SDRAMs made by different manufacturers are mounted on the MAIN Assy, the following malfunctions may occur:
① The power does not come on.
② High-speed dubbing disabled
③ Other malfunctions related to the SDRAM

7.1.12 SETUP SEQUENCE


Tuner/FL microcomputer
Connect the power cord.
Tuner/FL microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Clock displayed on the FL display.
Power ON ?
No
Yes
Power ON/Release the reset
"POWER ON" displayed on the FL display.
Waiting for communication to be established.
No
Yes
Key input and channel data transmitted to the system controller. And make displayed data by instructions from the system controller, and switch a channel.
System Codec IC (Initial Program Loader)
System microcomputer starts up.
Yes
FLASH check ?
NG
OK
Downloading through RS232C required.
FLASH check is NG when "POWER ON" displayed for over 1 minutes on the FL display.
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware.
DVD-R/RW Drive
Drive microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Has command arrived ?
No
Yes
ATA/ATAPI command processing
System Codec IC (Firmware)
Initialization of the peripheral circuit register and RAM, etc.
Communication start with the Tuner/FL microcomputer.
Obtaining LD temperature data from drive. Is temperature below 59°C?
No
Yes
Request for power off of system-control computer made to Tuner/FL microcomputer
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
Yes
*1
"CPRM ERR" displayed on FL display
Is starting/ID check of HDD OK?
No
Yes
*1
"HDD ERR" displayed on FL display
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Repair required?
No
Yes
Repair process
Playback requested?
No
Yes
Playback
Stop

*1: If both the drive ID check and starting/ID check of HDD failed, "CPRM ERR" is first displayed on FL display.

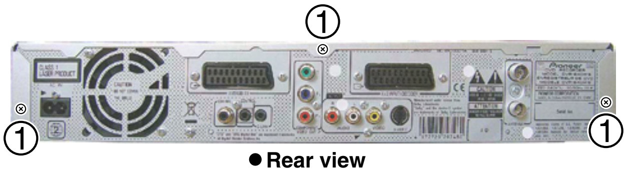
7.1.13 DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
Note 3: For performing the diagnosis shown below, the following jigs for service is required:
- Emergency disc ejection rod (GGF1529)
- Flexible cable for service (GGD1478), (VKP2291)

Diagnosis

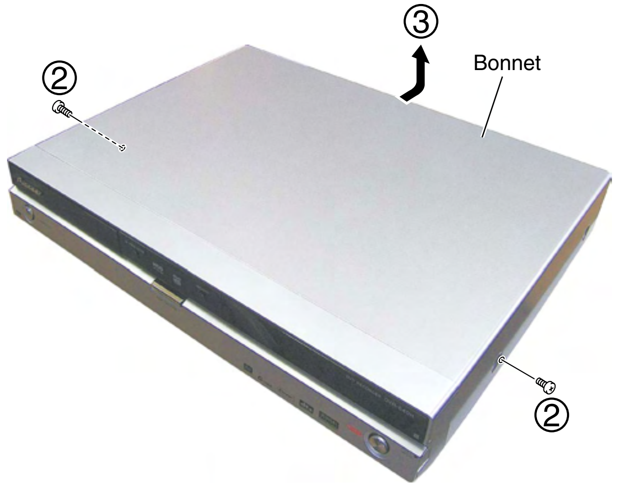
1 Bonnet

① Remove the three screws.



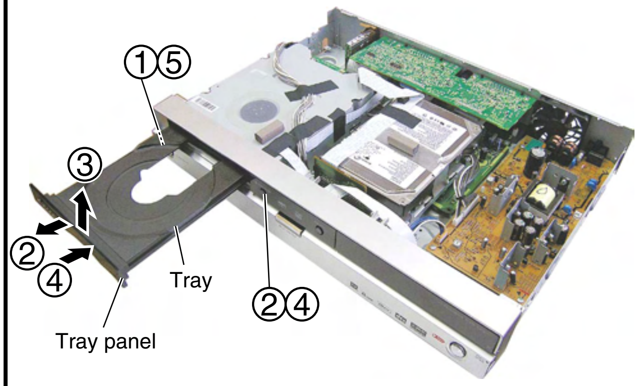
● **Rear view**

② Remove the two screws.
③ Remove the bonnet.



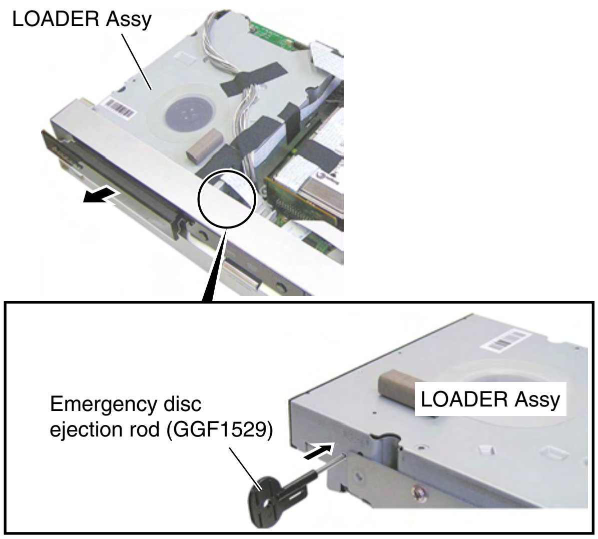
2 Tray Panel

① Press the ⏻ STANDBY/ON button to turn on the power.
② Press the ⏏ OPEN/CLOSE button to open the tray.
③ Remove the tray panel.
④ Press the ⏏ OPEN/CLOSE button to close the tray.
⑤ Press the ⏻ STANDBY/ON button to turn off the power.



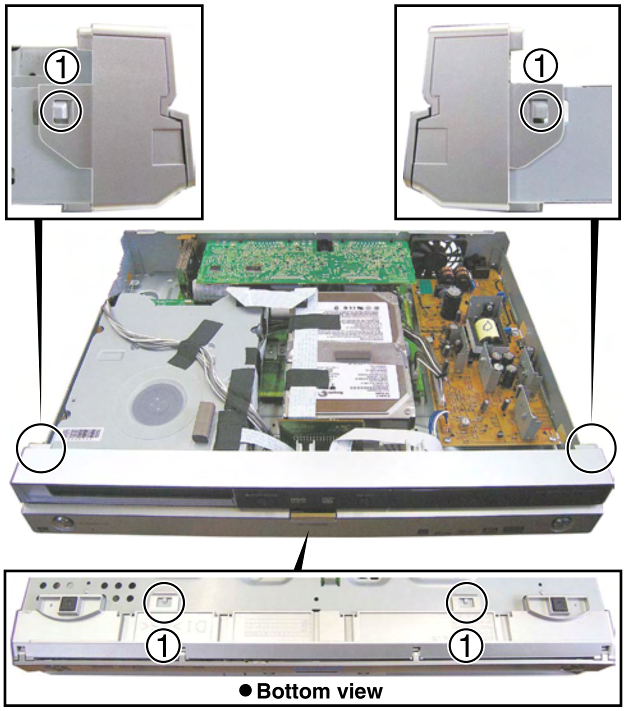
● **How to open the tray when the power cannot be turned on**

When the tray cannot be opened because the power cannot be turned on, it can be opened using the emergency disc ejection rod (GGF1529). (A long, thin rod about 1 mm in diameter can be used in place of the rod.)



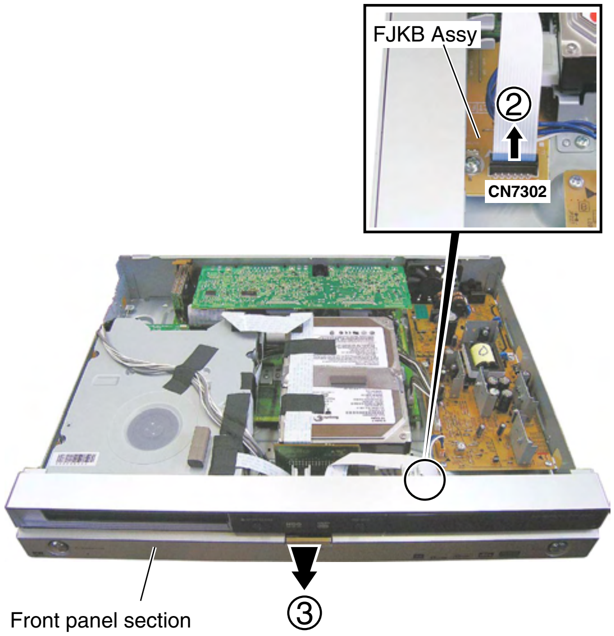
3 Front Panel Section

① Unhook the four hooks.


①
①
①
①
● Bottom view

② Disconnect the one flexible cable.

③ Remove the front panel section.


FJKB Assy
②
CN7302
Front panel section
③

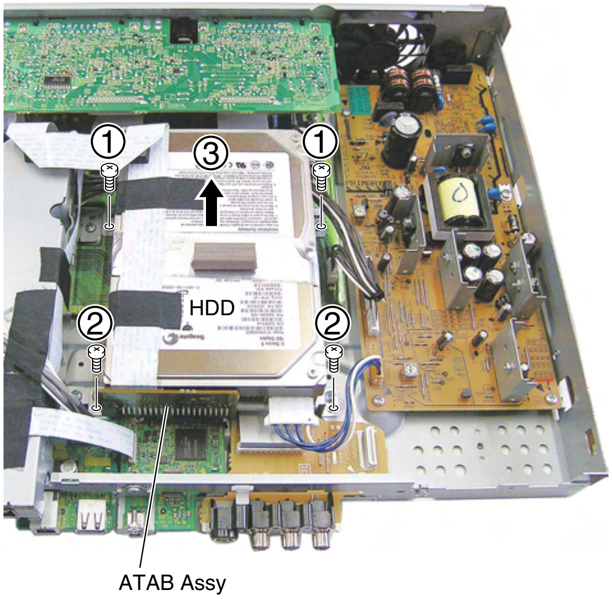
4 HDD and LOADER Assy

• HDD

① Remove the two screws.

② Remove the two screws.

③ Remove the HDD with the ATAB Assy and the HDD stay.
(Disconnect cables, as required.)

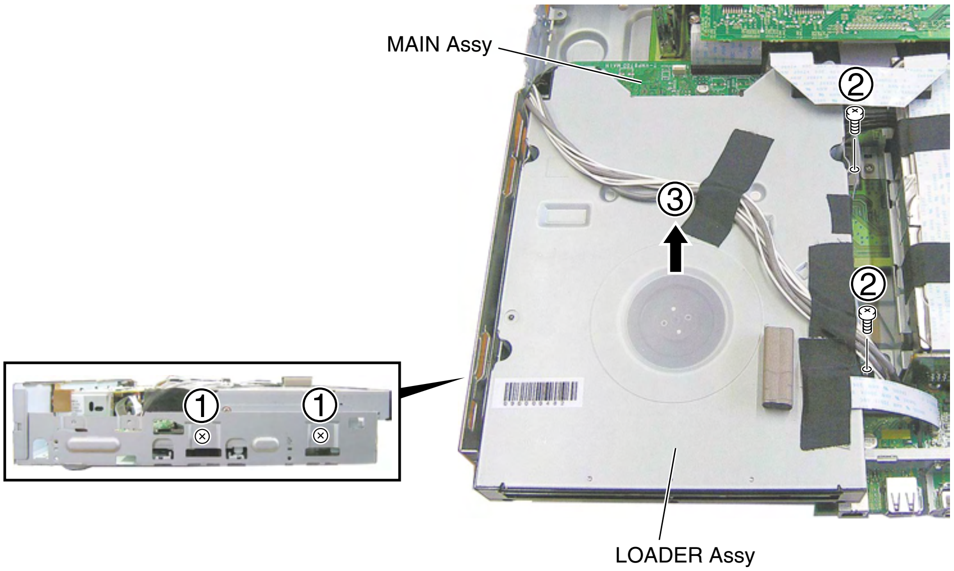

①
③
①
HDD
②
②
ATAB Assy

• LOADER Assy

① Remove the two screws.

② Remove the two screws.

③ Remove the LOADER Assy.
(Disconnect cables, as required.)


MAIN Assy
②
③
②
①
①
LOADER Assy

5 Diagnosis

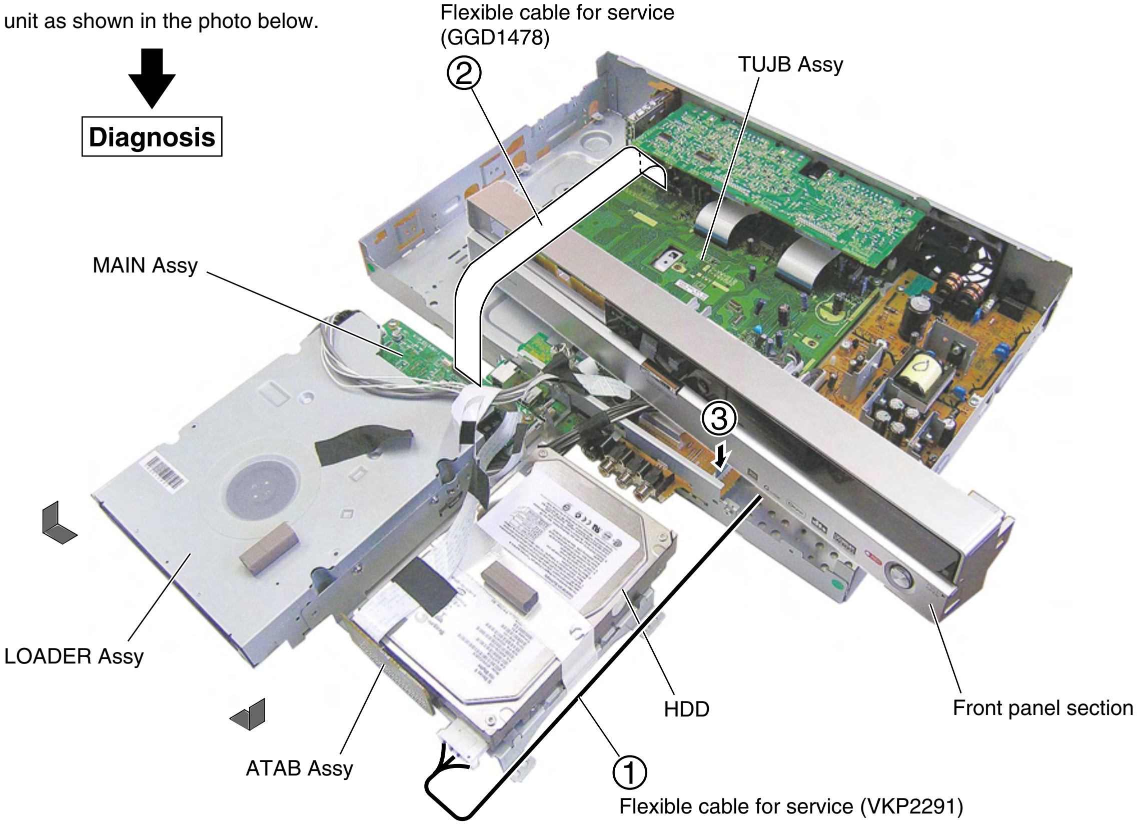
① Connect the flexible cable for service.

② Connect the flexible cable for service.

③ Reassembling the front panel section.

④ Arrange the unit as shown in the photo below.

Diagnosis

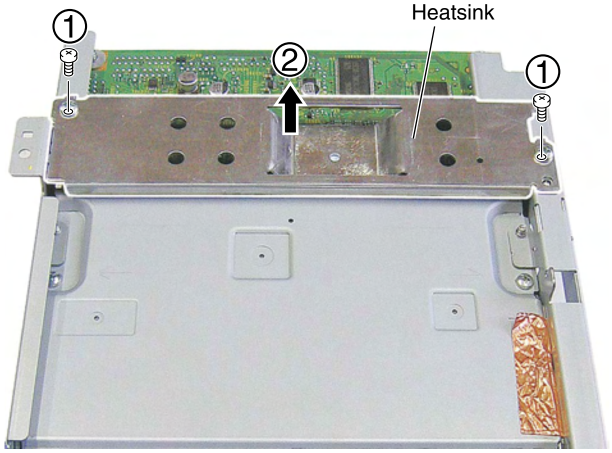

Flexible cable for service
(GGD1478)
②
TUJB Assy
MAIN Assy
③
LOADER Assy
HDD
Front panel section
ATAB Assy
①
Flexible cable for service (VKP2291)

Access to the MAIN Assy, Cleanning the Pickup Lens

• Heatsink

① Remove the two screws.

② Remove the heatsink.

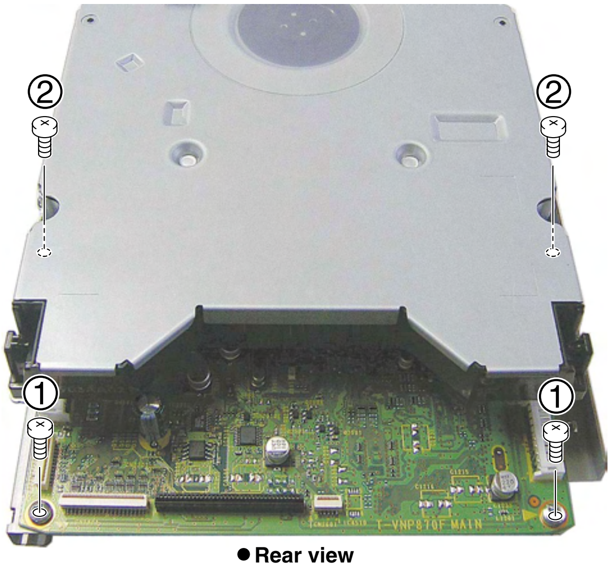

①
②
Heatsink
①

● **Bottom view**

• Writer Stay L and R

① Remove the two screws.

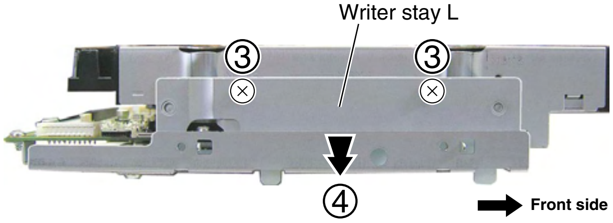
② Remove the two screws.



● **Rear view**

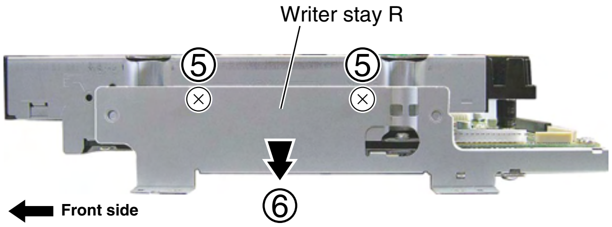
③ Remove the two screws.

④ Remove the writer stay L.


Writer stay L
③
③
④
Front side

⑤ Remove the two screws.

⑥ Remove the writer stay R.

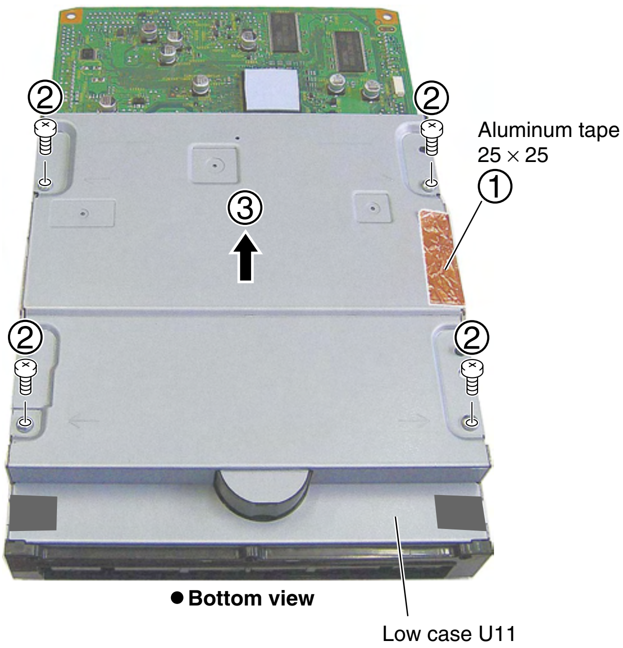

Writer stay R
⑤
⑤
⑥
Front side

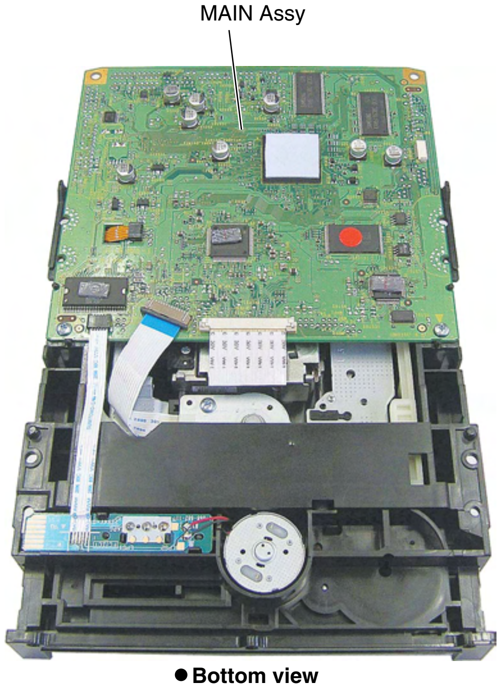
• Low Case U11 and UP Case S

① Remove the aluminum tape 25 × 25.

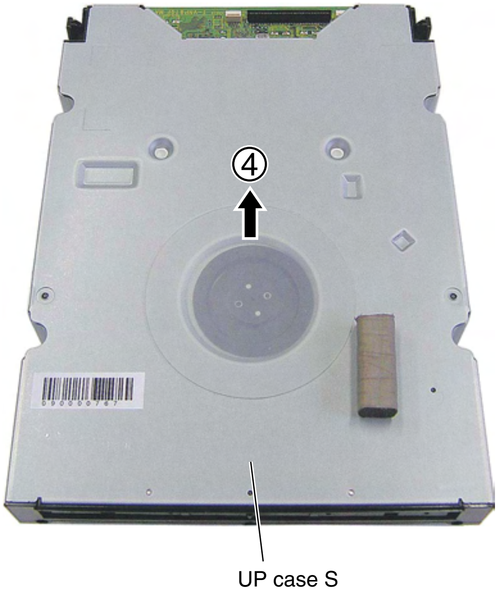
② Remove the four screws.

③ Remove the low case U11.


②
②
Aluminum tape
25 × 25
①
③
②
②
● Bottom view
Low case U11

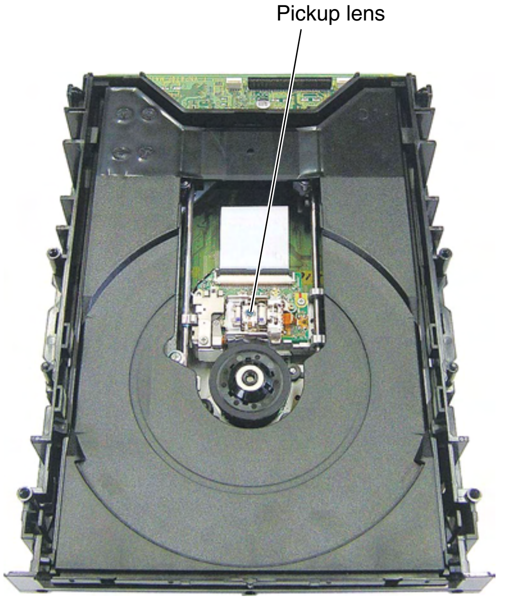

MAIN Assy
● Bottom view

④ Remove the UP case S.



Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008


Pickup lens

7.2 IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● List of IC

PMC006A8, UPD61272F1-107KA3A, PCA9557PW, TDOTG242-0F0C8, UPD72893BF1-FN3, BH7236AF

■ PMC006A8 (TUJB ASSY : IC101)

- TUNER Microcomputer

● Pin Function

No.	Mark	Pin Name	I/O	Pin Function
1	PA3/SO8	FLDATA	O	Communication line with FL driver From tuner controller to FL driver
2	PA4/SI8/SB8	FLSTB	O	Communication strobe signal with FL driver
3	PA5/SCK8	FLCLK	O	Communication clock with FL driver
4	P70/INT0/T0LCP	WDT	I	WDT for microcomputer runaway detection RC is external connection. H: Forced reset
5	P71/INT1/T0HCP	ACDET	I	Existence detection of AC power Level interrupt
6	P72/INT2/T0IN/T0LCP	HS_MTOT	I	System controller communication handshake From system controller to Tuner controller
7	P73/INT3/T0IN/T0HCP	IR	I	Pulse input of the remote control unit
8	RES#	XTRESET	I	Reset input
9	XT1	XT1	I	Sub clock connection 32.768kHz
10	XT2	XT2	O	Sub clock connection
11	VSS1	GND	–	Ground
12	CF1	CF1	I	Main clock connection 15MHz
13	CF2	CF2	O	Main clock connection
14	VDD1	VDD1	–	Power supply
15	P80/AN0	MODEL1	AI	Input 1 for destination judgment
16	P81/AN1	MODEL2	AI	Input 2 for destination judgment
17	P82/AN2	KEY1	AI	Main unit key input 1
18	P83/AN3	KEY2	AI	Main unit key input 2
19	P84/AN4	KEY3	AI	Main unit key input 3
20	P85/AN5	AGC	AI	AGC voltage input from the tuner For simple check
21	P86/AN6	BATTERY	AI	Input for battery voltage check Can measure only during 5V operation
22	P87/AN7	FUNC	AI	SCART Function signal input
23	P10/SO0	SDET3	I	Plug detection of S terminal 3
24	P11/SI0/SB0	SDET2	I	Plug detection of S terminal 2
25	P12/SCK0	SDET1	I	Plug detection of S terminal 1
26	P13/SO1	AVLOUT	O	NexTViewLink output signal Negative logic Reverse on the SCART terminal
27	P14/SI1/SB1	SDA	O/D	IIC communication (data)
28	P15/SCK1	SCL	O/D	IIC communication (clock)
29	P16/T1PWML	XSYSRST	O	IC reset signal of whole system
30	P17/T1PWMH/BUZ	TUDET	I	The old and the new distinction of the tuner pack L: New tuner, H: Old tuner
31	PE0/AN12	MUTEV	O	CVBS for video driver IC and Y/C mute signal L: Mute, H: Release Fix to L because mute does not control.
32	PE1/AN13	IRB_EN	I	IR blaster function valid selection Open: IR blaster invalidity, GND: IR blaster is valid
33	PE2/AN14	AMUTE2	O	Audio mute signal of output stage Negative logic H: Release, L: Mute
34	PE3/AN15	SELV1	O	Input switch of video selector INSEL 1 of LA73031
35	PE4	SELV2	O	Input switch of video selector INSEL 2 of LA73031
36	PE5	SELV3	O	Input switch of video selector INSEL 3 of LA73031
37	PE6	YVSEL	O	CVBS or Y/C switch of video selector YOUT-SEL of LA73031
38	PE7	SWSTBY	O	Standby mode switch of video selector Fix to L output because the standby mode is not used.
39	VSS4	GND	–	Ground
40	VDD4	VDD4	–	Power supply

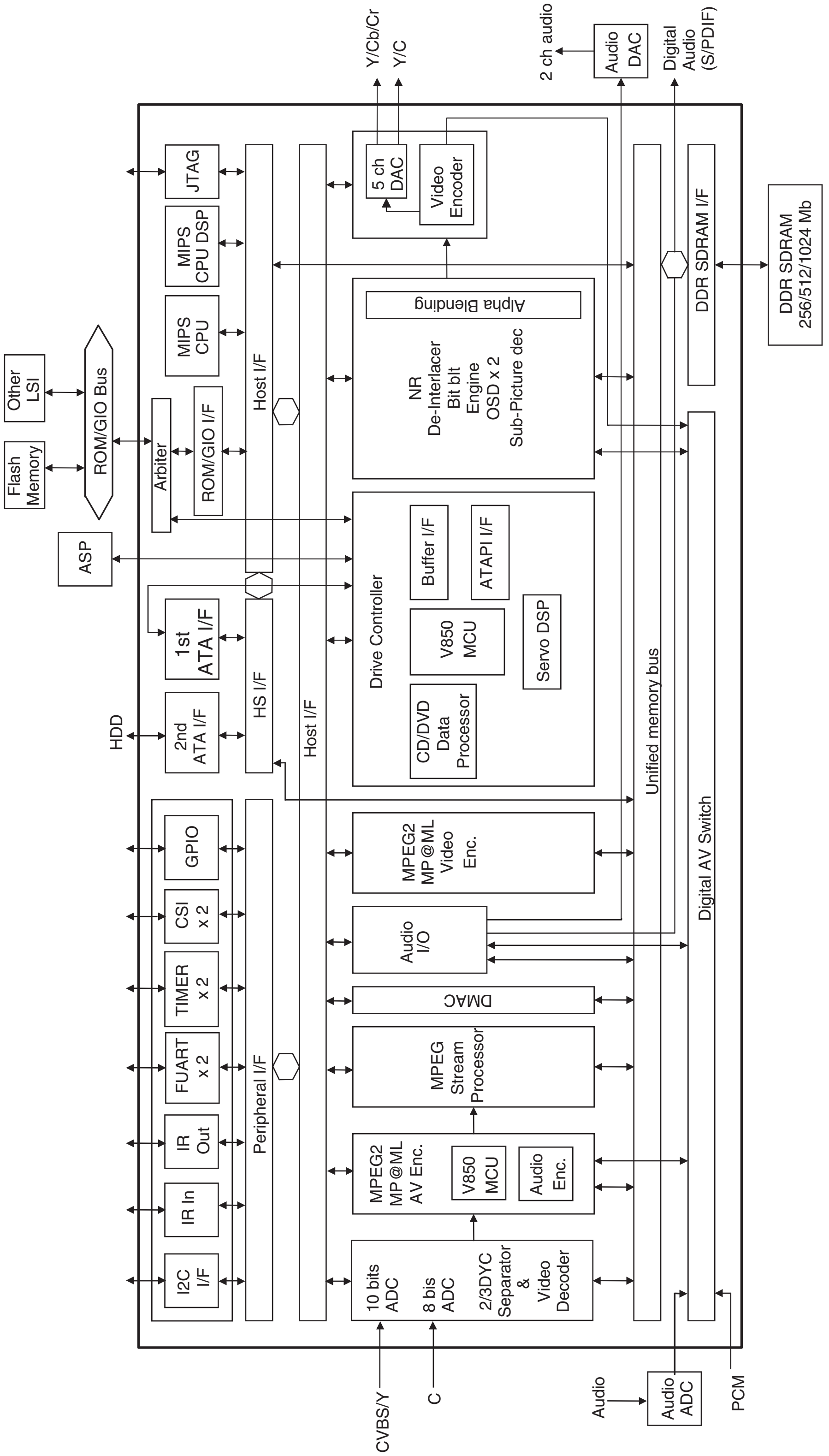
No.	Mark	Pin Name	I/O	Pin Function
41	PF0	LET/FUNC_ON	O	Letter-box output superimposed signal Function output signal for Europe model
42	PF1	SQU	O	Squeeze output superimposed signal
43	PF2	CONDET	I	Electric discharge detection of capacitor for power supply backup Readout after cold-start immediately. If it was L, reduce the voltage.
44	PF3	S1	O	S1/S2 switching signal
45	PF4/IRP	IROUT	O	Pulse output for IR blaster
46	PF5	P_SAVE2	O	Power save mode switch of HA118326
47	PF6	PSMUTE	O	Audio mute control of SCART
48	PF7	XAVLTH	O	Through switch of AV.Link communication line
49	SI2P0/SO2	SO2	O	SIO2 transmission Not used.
50	SI2P1/SI2/SB2	SI2	O	SIO2 reception Not used.
51	SI2P2/SCK2	SCK2	O	SIO2 communication clock Not used.
52	SI2P3/SCK20	RFTHRU	O	RF through switch of the tuner Control with the main unit setting during standby.
53	PWM1	NC	O	Non connection
54	PWM0	FANCTRL	O	Radiation of heat fan rotating speed control H: Top speed, L: Stop Intermediate speed realizes by PWM
55	VDD2	VDD2	–	Power supply
56	VSS2	GND	–	Ground
57	P00	P_CONT2	O	Power supply control of the main board For controlling 2.5V and 3.3V
58	P01	MUTECTL	O	Mute invalidity control Port to suppress last stage mute
59	P02	EPGEXT	O	Equalizer switch of slicer input video
60	P03	TUON	O	Power supply control of the tuner section There is a case to turn on the power during standby independently.
61	P04	SWVION	O	Power supply control of Japan/North America video system Non connection in Europe and General
62	P05/CKO	P_CONT	O	Power supply control of the whole system
63	P06/T6O	FLPON	O	Power supply control of the FL tube
64	P07/T7O	XP_SAVE	O	Power supply control of Europe video system Set to SWVION on the source.
65	P20/INT4/T1IN/T0LCP/T0HCP/INT6/T0LCP1/SSGI0	STATCHG	I	Multiplex status change detection of MSP D_CTR_I/O_1 of MSP
66	P21/INT4/T1IN/T0LCP/T0HCP	J_CLOCK	I	Input audio for Just Clock Pulse input of the tuner audio
67	P22/INT4/T1IN/T0LCP/T0HCP/HCTR	CSYNCIN	I	C-Sync for Auto-Rec
68	P23/INT4/T1IN/T0LCP/T0HCP	XCHECKER	I	Unit checker mounting distinction
69	P24/INT5/T1IN/T0LCP/T0HCP/INT7/T0HCP1/SSGI1	MRST	I	Main board power failure detection Edge interrupt
70	P25/INT5/T1IN/T0LCP/T0HCP	AVLIN	I	NexTViewLink input line
71	P26/INT5/T1IN/T0LCP/T0HCP	X525P	I	525P output signal from the system controller Not used.
72	P27/INT5/T1IN/T0LCP/T0HCP	BLANKIN	I	BLANK signal input of the SCART
73	P30/PWM4	NC	O	Non connection
74	P31/PWM5	TU_DCCON	O	DC/DC converter For +32V generation 200kHz, 2(H): PWM output of 1 (L)
75	P32/UTX1	TXD1	O	Transmission for RS-232C terminal
76	P33/URX1	RXD1	I	Reception for RS-232C terminal
77	P34/UTX2	TXD2	O	UART2 transmission Not used.
78	P35/URX2	RXD2	O	UART2 reception Not used.
79	P36	HS_TTOM	O	System controller communication handshake From tuner controller to system controller
80	VDDODA	VDDODA	–	Power supply

No.	Mark	Pin Name	I/O	Pin Function
81	PB6/CVD/CSYNC	CVBSIN	I	Input video for data slicer 1.0Vpp
82	VSSVCO	GND	–	Ground
83	PB4/FILTSLC	FILTSLC	I	External filter for slicer PLL
84	VDDVCO	VDDVCO	–	Power supply
85	PB2	NC	O	Non connection
86	PB1	NC	O	Non connection
87	PB0/DS1FLD	NC	O	Non connection
88	VSS3	GND	–	Ground
89	VDD3	VDD3	–	Power supply
90	PC7/DBGP2	DBGP2	O/D	Control port for on-chip debugger
91	PC6/DBGP1	DBGP1	O/D	Control port for on-chip debugger
92	PC5/DBGP0	DBGP0	O/D	Control port for on-chip debugger
93	PC4/AN11	C/N	AI	C/N detection of BS-IF
94	PC3/AN10	BS15IN	I	Antenna power supply detection of the BS-OUT terminal There is power supply with L. There is no power supply with H
95	PC2/AN9	BS15SRT	I	Antenna power supply short-circuit detection of the BS-IN terminal L: Short-circuit, H: Normal
96	PC1/AN8	BS15ON	O	Antenna power supply control to the BS-IN terminal L: Power OFF, H: Power ON
97	PC0/OCSYNC	P_SAVEBS	O	BS RF through control L: Not through, H: Through
98	PA0/SO7	SD_TTOM	O	System controller communication data line From tuner controller to system controller
99	PA1/SI7/SB7	SD_MTOT	I	System controller communication data line From system controller to tuner controller
100	PA2/SCK7	SCK_MTOT	I	System controller communication clock From system controller to tuner controller

UPD61272F1-107KA3A (MAIN ASSY : IC1001)
(EMMA2RFE)

- DVDR IC

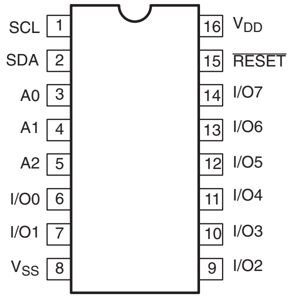
BLOCK DIAGRAM


Y/Cb/Cr
Y/C
2 ch audio
Audio DAC
Digital Audio (S/PDIF)
JTAG
MIPS CPU DSP
MIPS CPU
Host I/F
5 ch DAC
Video Encoder
Alpha Blending
NR
De-Interlacer
Bit blt
Engine
OSD x 2
Sub-Picture dec
DDR SDRAM I/F
DDR SDRAM 256/512/1024 Mb
Other LSI
Flash Memory
ROM/GIO Bus
Arbiter
ROM/GIO I/F
ASP
Drive Controller
Buffer I/F
ATAPI I/F
V850 MCU
Servo DSP
CD/DVD Data Processor
1st ATA I/F
2nd ATA I/F
HDD
HS I/F
Host I/F
Unified memory bus
Digital AV Switch
GPIO
CSI x 2
TIMER x 2
FUART x 2
IR Out
IR In
I2C I/F
Peripheral I/F
MPEG2 MP@ML Video Enc.
Audio I/O
DMAC
MPEG Stream Processor
MPEG2 MP@ML AV Enc.
V850 MCU
Audio Enc.
10 bits ADC
8 bis ADC
2/3DYC Separator & Video Decoder
CVBS/Y
C
Audio
Audio ADC
PCM

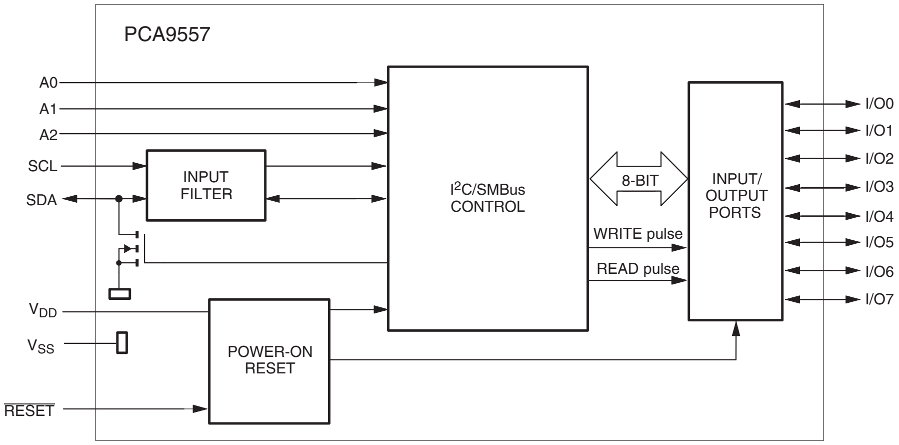
PCA9557PW (MAIN ASSY : IC3802)

- 8Bit IIC to PARA IC

PIN LAYOUT


SCL 1
SDA 2
A0 3
A1 4
A2 5
I/O0 6
I/O1 7
VSS 8
16 VDD
15 RESET
14 I/O7
13 I/O6
12 I/O5
11 I/O4
10 I/O3
9 I/O2

BLOCK DIAGRAM


PCA9557
A0
A1
A2
SCL
SDA
INPUT FILTER
I2C/SMBus CONTROL
8-BIT
INPUT/ OUTPUT PORTS
WRITE pulse
READ pulse
VDD
VSS
POWER-ON RESET
RESET
I/O0
I/O1
I/O2
I/O3
I/O4
I/O5
I/O6
I/O7

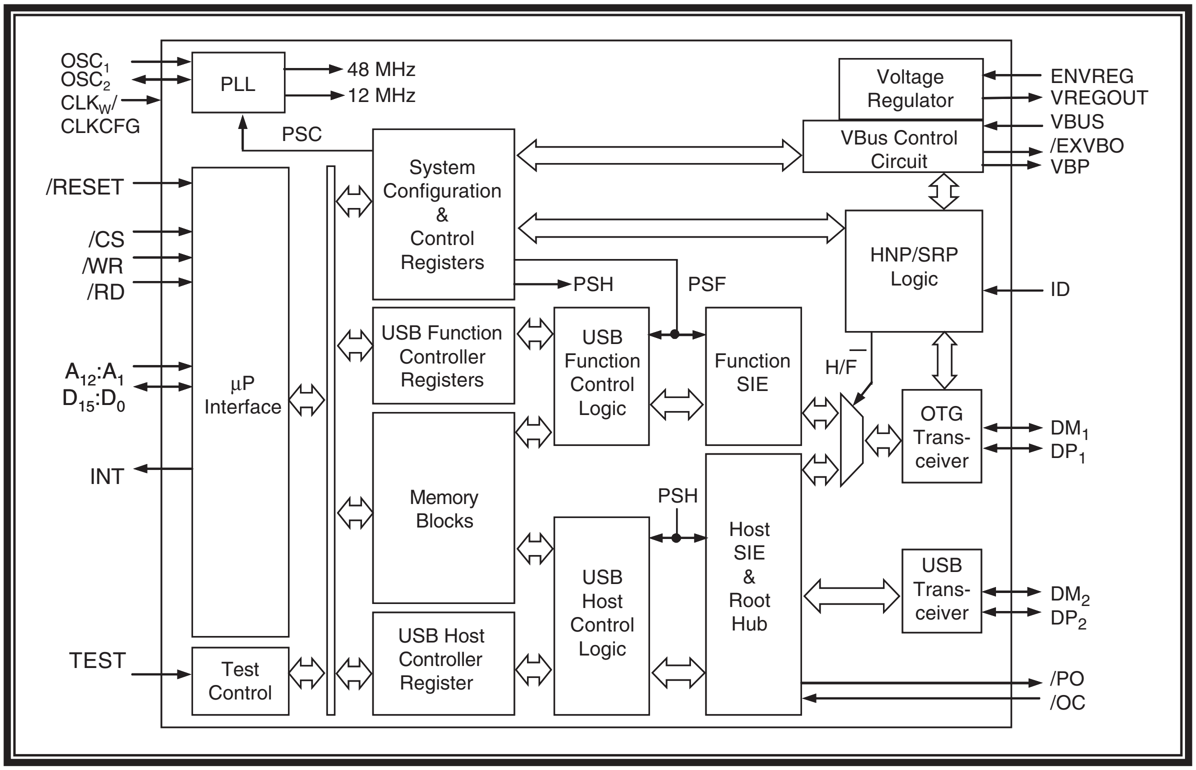
PIN FUNCTION

Pin No.	Name	Function
1	SCL	Serial clock line
2	SDA	Serial data line
3	A0	Address input 0
4	A1	Address input 1
5	A2	Address input 2
6	I/O0	I/O0 (open drain)
7	I/O1	I/O1
8	V_{SS}	Supply ground
9±14	I/O2±I/O7	I/O2 to I/O7
15	$\overline{\text{RESET}}$	Active-LOW reset input
16	V_{DD}	Supply voltage

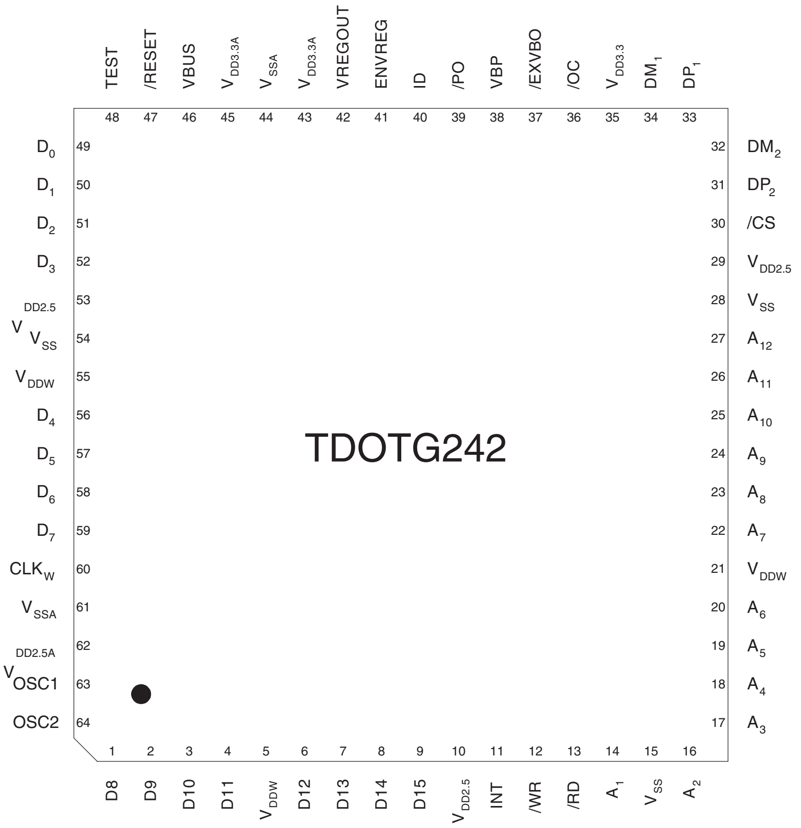
TDOTG242-0F0C8 (MAIN ASSY : IC5701)

- USB Controller IC

● BLOCK DIAGRAM


OSC1
OSC2
CLKW/
CLKCFG
PLL
48 MHz
12 MHz
PSC
/RESET
/CS
/WR
/RD
A12:A1
D15:D0
INT
TEST
µP Interface
Test Control
System Configuration & Control Registers
USB Function Controller Registers
Memory Blocks
USB Host Controller Register
PSH
PSF
USB Function Control Logic
Function SIE
USB Host Control Logic
PSH
Host SIE & Root Hub
Voltage Regulator
VBus Control Circuit
HNP/SRP Logic
H/F
OTG Trans-ceiver
USB Trans-ceiver
ENVREG
VREGOUT
VBUS
/EXVBO
VBP
ID
DM1
DP1
DM2
DP2
/PO
/OC

● PIN LAYOUT


TDOTG242
TEST 48
/RESET 47
VBUS 46
VDD3.3A 45
VSSA 44
VDD3.3A 43
VREGOUT 42
ENVREG 41
ID 40
/PO 39
VBP 38
/EXVBO 37
/OC 36
VDD3.3 35
DM1 34
DP1 33
D0 49
D1 50
D2 51
D3 52
VDD2.5 53
VSS 54
VDDW 55
D4 56
D5 57
D6 58
D7 59
CLKW 60
VSSA 61
VDD2.5A 62
OSC1 63
OSC2 64
32 DM2
31 DP2
30 /CS
29 VDD2.5
28 VSS
27 A12
26 A11
25 A10
24 A9
23 A8
22 A7
21 VDDW
20 A6
19 A5
18 A4
17 A3
1 D8
2 D9
3 D10
4 D11
5 VDDW
6 D12
7 D13
8 D14
9 D15
10 VDD2.5
11 INT
12 /WR
13 /RD
14 A1
15 VSS
16 A2

● PIN NAME

1	D_8	17	A_3	33	DP_1	49	D_0
2	D_9	18	A_4	34	DM_1	50	D_1
3	D_{10}	19	A_5	35	$V_{DD3.3}$	51	D_2
4	D_{11}	20	A_6	36	/OC	52	D_3
5	V_{DDW}	21	V_{DDW}	37	/EXVBO	53	$V_{DD2.5}$
6	D_{12}	22	A_7	38	VBP	54	V_{SS}
7	D_{13}	23	A_8	39	/PO	55	V_{DDW}
8	D_{14}	24	A_9	40	ID	56	D_4
9	D_{15}	25	A_{10}	41	ENVREG	57	D_5
10	$V_{DD2.5}$	26	A_{11}	42	VREGOUT	58	D_6
11	INT	27	A_{12}	43	$V_{DD3.3A}$	59	D_7
12	/WR	28	Vss	44	V_{SSA}	60	CLK_W
13	/RD	29	$V_{DD2.5}$	45	$V_{DD3.3A}$	61	V_{SSA}
14	A_1	30	/CS	46	VBUS	62	$V_{DD2.5A}$
15	V_{SS}	31	DP_2	47	/RESET	63	OSC_1
16	A_2	32	DM_2	48	TEST	64	OSC_2

OTG242LP pin assignment for the 64-pin LQFP

- **PIN FUNCTION**

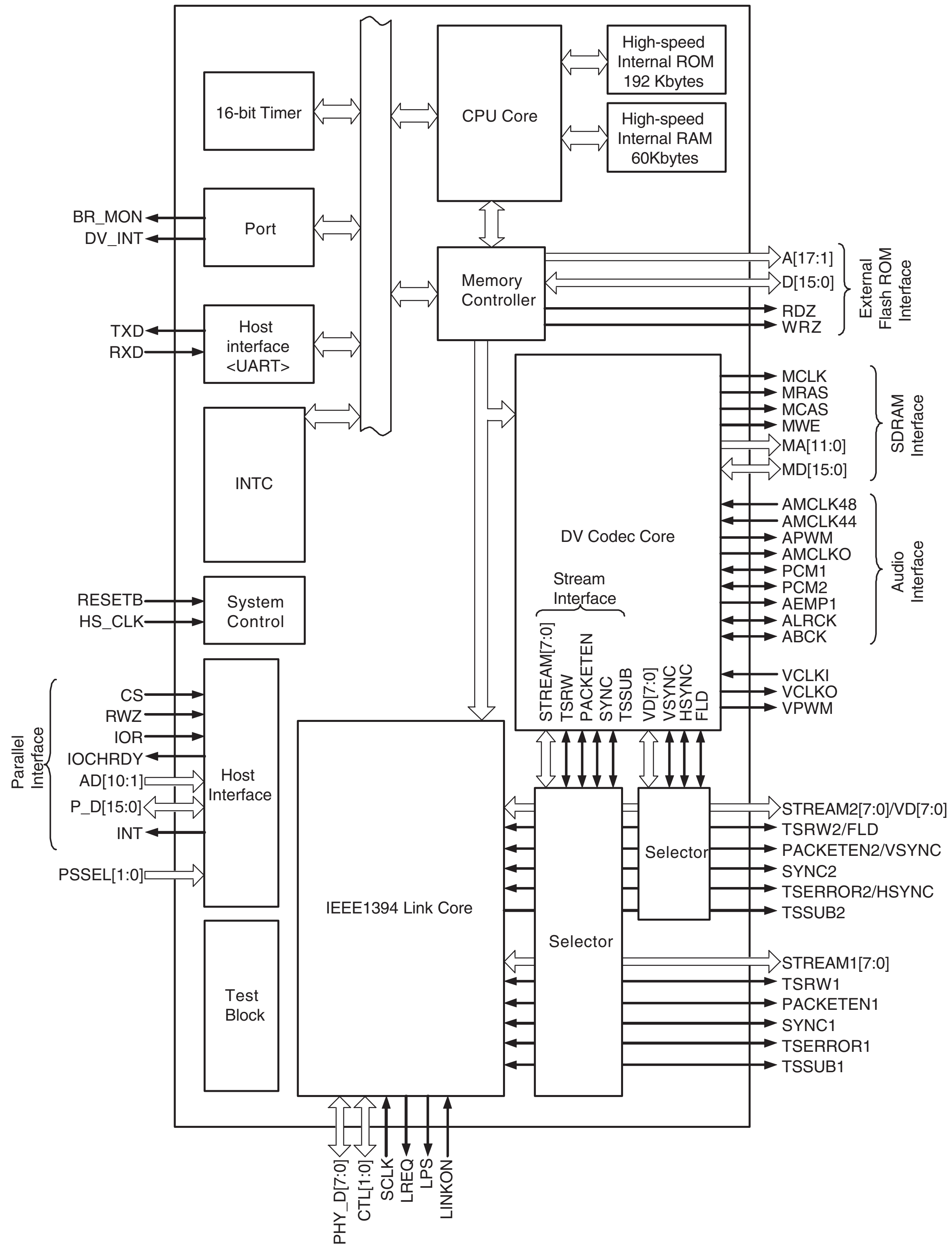
Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
OSC_1	I		Terminal for OSC.
OSC_2	IO		
/RESET	I	L	Hardware reset.
/CS	I	L	Chip select.
/WR	I	L	Write strobe.
/RD	I	L	Read strobe.
A_{12}:A_1	I		Address bus for an addressing space of 8K bytes.
D_{15}:D_0	IO		16-bit data bus.
TEST	I	H	Factory test mode.
/EXVBO	O	L	Turn on/off the external V_{BUS} (5V) for OTG operation (1: V_{BUS} off; 0: V_{BUS} on).
/PO	O	L	Turn on/off the gang power for all Host ports.
/OC	I	L	Over current condition indicator for gang powered Host ports.
INT^1	O/WO	PL	Interrupt to the MCU.
ID	I		Connected to the ID pin of the mini-AB connector (Port 1) for OTG applications.
DM_1, DP_1	IO		Data lines for Port 1, which may serve as a USB Host, or OTG port.

Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
DM_2, DP_2	IO		Data lines for Port 2, a dedicated USB Host port.
VBUS	I		V_{BUS} input sampled during HNP/SRP operations by the OTG port.
VBP	IO	H	V_{BUS} pulsing control. This pin is used only when Port 1 is an OTG port for a B-DEVICE.
CLK_W	I		This pin is available only in the QFP package
CLKCFG	I		This pin is available only in the BGA package
ENVREG	I		Enables the internal Voltage Regulator if asserted.
VREGOUT	PW		Internal Voltage Regulator output of 2.5V
$V_{DD3.3A}$	PW		Analog +3.3V
$V_{DD2.5A}$	PW		Analog +2.5V
V_{SSA}	PW		Analog ground.
$V_{DD2.5}$	PW		Digital +2.5V
V_{DDW}	PW		Wide-range IO +3.3V or +2.5V.
V_{SS}	PW		Digital/Wide-range IO ground.
NC	PS		No connection. These pins should be left floating.

■ UPD72893BF1-FN3 (DVJB ASSY : IC102)

- DV-CODEC IC

● BLOCK DIAGRAM


16-bit Timer
CPU Core
High-speed Internal ROM 192 Kbytes
High-speed Internal RAM 60Kbytes
BR_MON
DV_INT
Port
Memory Controller
A[17:1]
D[15:0]
RDZ
WRZ
External Flash ROM Interface
TXD
RXD
Host interface <UART>
MCLK
MRAS
MCAS
MWE
MA[11:0]
MD[15:0]
SDRAM Interface
INTC
DV Codec Core
AMCLK48
AMCLK44
APWM
AMCLKO
PCM1
PCM2
AEMP1
ALRCK
ABCK
Audio Interface
Stream Interface
RESETB
HS_CLK
System Control
STREAM[7:0]
TSRW
PACKETEN
SYNC
TSSUB
VD[7:0]
VSYNC
HSYNC
FLD
VCLKI
VCLKO
VPWM
Parallel Interface
CS
RWZ
IOR
IOCHRDY
AD[10:1]
P_D[15:0]
INT
PSSEL[1:0]
Host Interface
IEEE1394 Link Core
Selector
Selector
STREAM2[7:0]/VD[7:0]
TSRW2/FLD
PACKETEN2/VSYNC
SYNC2
TSERROR2/HSYNC
TSSUB2
STREAM1[7:0]
TSRW1
PACKETEN1
SYNC1
TSERROR1
TSSUB1
Test Block
PHY_D[7:0]
CTL[1:0]
SCLK
LREQ
LPS
LINKON

● PIN LAYOUT

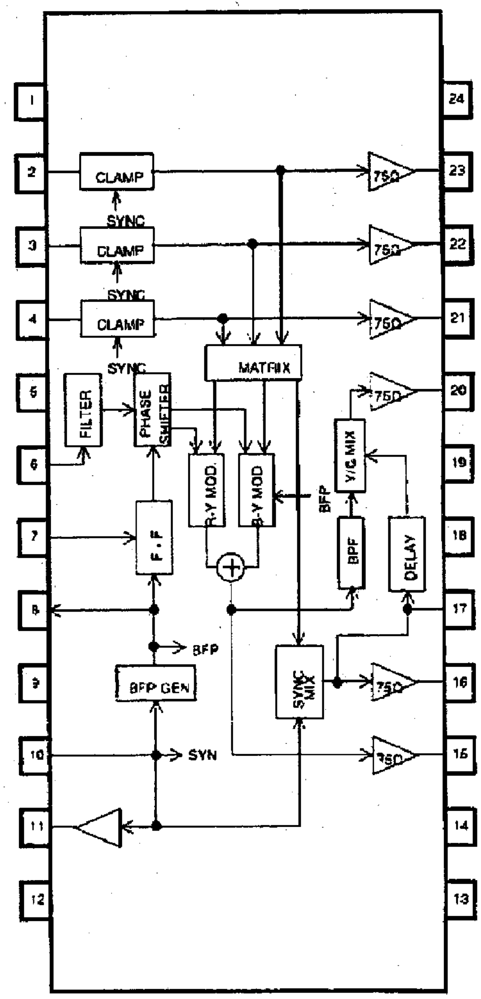
- 208-pin plastic FBGA (15x15)

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U
17	A3	A2	A1	IC(PL)	3.3GND	2.5GND	3.3VDD	P_D9	P_D5	P_D2	INT	IOR	AD10	AD6	AD4	AD2	PSSEL1
16	A5	A4	BR_MON	IC(PH)	IC(PH)	P_D15	P_D12	P_D8	3.3GND	3.3VDD	IOCHRDY	RWZ	AD9	AD5	AD3	AD1	PSSEL0
15	A7	A6	IC (PL)	RXD	IC(PH)	P_D14	P_D11	P_D7	P_D4	P_D1	IC(O)	2.5VDD	AD8	AMCLKO	APWM	AMCLK44	AMCLK48
14	A9	A8	DV_INT	TXD	IC(PH)	P_D13	P_D10	P_D6	P_D3	P_D0	IC(H)	CS	AD7	PCM2	AEMP1	3.3GND	IC(O)
13	A12	A11	3.3VDD	A10										ALRCK	ABCK	3.3VDD	PCM1
12	A15	A14	2.5VDD	A13										MA9	MA10	2.5GND	MA11
11	RDZ	A17	A16	3.3GND										MA5	MA6	MA7	MA8
10	D2	D1	D0	WRZ										MA2	3.3GND	MA3	MA4
9	D6	D5	D4	D3										MCLK	3.3VDD	MA0	MA1
8	3.3GND	3.3VDD	D8	D7										MD15	MWE	MCAS	MRAS
7	D12	D11	D10	D9										MD11	MD12	MD13	MD14
6	D15	2.5GND	D14	D13										MD9	MD10	2.5VDD	3.3GND
5	PLLAGND	PLLAVDD	PLLDVDD	IC(L)										MD6	MD7	3.3VDD	MD8
4	HS_CLK	PLLDGND	RESETB	3.3VDD	3.3GND	CTL0	LPS	STREAM12	STREAM16	TSRW1	PACKETEN2/VSYNC	SYNC2	STREAM21/VD1	STREAM25/VD5	AFS2	MD4	MD5
3	IC (PL)	IC (L)	PHY_D7	PHY_D4	PHY_D1	2.5VDD	LINKON	STREAM13	STREAM17	SYNC1	TSERROR2/HSYNC	TSSUB2	STREAM22/VD2	STREAM26/VD6	VCLKI	MD2	MD3
2	IC (L)	IC (L)	PHY_D6	PHY_D3	PHY_D0	SCLK	STREAM10	STREAM14	PACKETEN1	3.3VDD	3.3GND	2.5GND	STREAM23/VD3	STREAM27/VD7	VCLKO	MD1	3.3GND
1	IC (H)	IC (L)	PHY_D5	PHY_D2	CTL1	LREQ	STREAM11	STREAM15T	SERROR1	TSSUB1	TSRW2/FLD	STREAM20/VD0	STREAM24/VD4	AFS13	3.3VDD	VPWM	MD0

BH7236AF (SCRB ASSY : IC2000)

- Color TV Signal Encoder

BLOCK DIAGRAM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CLAMP
SYNC
CLAMP
SYNC
CLAMP
SYNC
MATRIX
FILTER
PHASE SHIFTER
R-Y MOD.
B-Y MOD
BFP
Y/C MIX
75Ω
75Ω
75Ω
75Ω
75Ω
75Ω
BPF
DELAY
F.F
BFP
BFP GEN
SYNC MIX
SYN

PIN FUNCTION

Terminal No.	Terminal name	Description of terminals	Termina No.	Terminal name	Description of terminals
1	GND1	Ground terminal except 75Ω driver	13	N.C.	No Connection
2	RIN	Analog Red signal input terminal.	14	N.C.	No Connection
3	GIN	Analog Green signal input terminal.	15	COUT	Chroma signal output terminal.
4	BIN	Analog Blue signal input terminal.	16	YOUT	Luminance signal output terminal.
5	N.C.	No Connection	17	YTRAP	Luminance trap filter terminal.
6	SCIN	Color subcarrier input terminal.	18	N.C.	No Connection
7	NT/PAL	Input terminal for the selection of TV format.	19	VCC2	Power supply terminal for 75Ω driver.
8	BFPOUT	Burst timing signal output terminal.	20	VOUT	Composite video output terminal.
9	N.C.	No Connection	21	BOUT	Analog B signal output terminal.
10	SYNCIN	Composite sync input terminal.	22	GOUT	Analog G signal output terminal.
11	SYNCOUT	Composite sync output terminal.	23	ROUT	Analog R signal output terminal.
12	VCC1	Power supply terminal except 75Ω driver.	24	GND2	Ground terminal for 75Ω driver

7.3 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 15°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance / Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm	387	217	200	26
1.0 inch / 25.4 mm	595	457	310	37
2.0 inch / 50.8 mm	1133	600	680	70
4.0 inch / 101.6 mm	1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
  If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurrs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

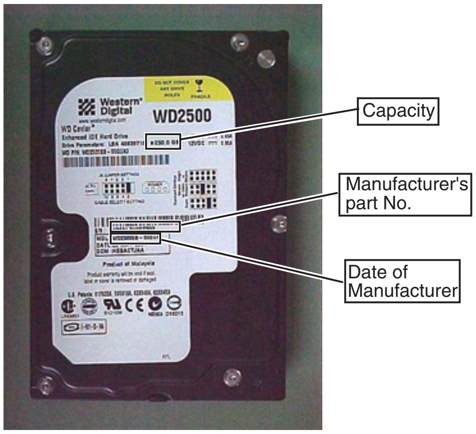
Outline and part No. of the HDDs

*Pioneer's part No. is not stamped.

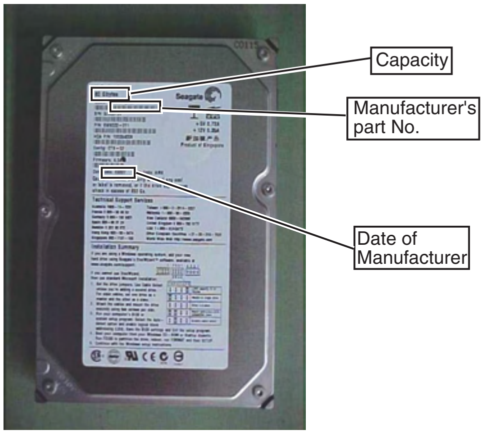
Model Name	Capacity	Western Digital		SEAGATE	
		Pioneer's Part No. (for service)	Manufacture's Part No.	Pioneer's Part No. (for service)	Manufacture's Part No.
DVR-540H-S DVR-640H-AV	160GB	VXF1068	WD1600BB -xxGUCx	VXF1086	ST3160022ACE

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Western Digital(160GB)

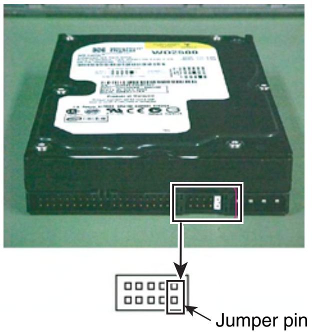

Capacity
Manufacturer's part No.
Date of Manufacturer

Seagate(160G)


Capacity
Manufacturer's part No.
Date of Manufacturer

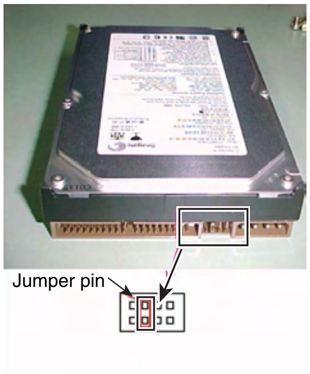
Confirmation of the jumper pin location of the HDD

Western Digital



Setting : Cable Select(CS)

Seagate



Setting : Cable Select(CS)

7.4 DISC/CONTENT FORMAT

	HDD	DVD-R		DVD-RW		DVD+R	DVD +RW	DVD-RAM
Marks used in this manual	HDD	DVD (VR) *1	DVD (Video)	DVD (VR) *1	DVD (Video) *2	DVD+R	DVD+RW	DVD-RAM *13, 16
Logos	HDD HARD DISK DRIVE	DVD R		DVD RW	DVD RW RW 2	RW DVD+R	RW DVD+ReWritable RW High Speed DVD+ReWritable	DVD RAM
Re-recordable / Erasable	●	● *3	● *3	●	●	*3	● *14	●
Editing of recorded programs	●	●	● *4	●	● *4	● *4	● *4	●
Recording of Copy-once protected material	●	● *12		● *12				● *12
Playback in other players/recorders	n/a	*5	● *6	● *7	● *6	● *6, 15	● *8	● *9
Chase play	●							
16:9 and 4:3 program recording	●	●		●				●
Bilingual broadcast recording of both audio channels	● *10, 11	● *11		● *11				● *11

Notes to table

*1 Must be initialized for VR mode recording
*2 Must be initialized for Video mode recording
*3 Erasable, but free space does not increase
*4 Cannot erase sections, edit chapters or use playlist editing
*5 Must be compatible with DVD-R(VR) playback
*6 Finalize using this recorder (may not playback in some units)
*7 Must be compatible with DVD-RW(VR) playback
*8 Must be compatible with DVD+RW playback
*9 Must be compatible with DVD-RAM playback
*10 Only when HDD Recording Format is set to Video Mode Off
*11 Only when the recording mode is not set to LPCM
*12 CPRM-compatible discs only
*13 Take the disc out of the cartridge before use. Only Matsushita and Maxell discs have been tested to work reliably with this recorder. Discs from other makers may become unusable when recorded or edited.
*14 Erasing a title does not increase the available recording time, nor increase the number of recordable titles left.
*15 Must be compatible with DVD+R playback
*16 Depending on the disc, it may have to be initialized before it can be recorded. In this case, initialization will take about 1 hour.

DVD is a trademark of DVD Format/Logo Licensing Corporation.

Using DVD-R DL/DVD+R DL discs

DVD-R DL (dual-layer) and DVD+R DL (double-layer) discs contain two recordable layers on a single side, giving about 1.8 times the recording capacity of a conventional single-layer disc. This unit can record to both DVD-R DL and DVD+R DL discs.

- If you intend to play DVD-R DL (Video mode) or DVD+R DL discs recorded on this unit on other DVD recorders/players, you must finalize them. (Note that some DVD recorders/players may not play even finalized DL discs.)
- Please read the information provided on the disc packaging carefully before purchasing DVD-R DL/DVD+R DL discs:
- *Confirm the disc version:* Use ver. 3.0 / 2 x to 4 x DVD-R discs.
- *Confirm the recording speed :* DVD-R should be compatible with 2 x or 4 x recording; DVD+R with 2.4 x to 8 x recording.
- This logo indicates that the disc is a DVD-R DL or DVD+R DL disc:

DVD R R DL 4X/2X RW DVD+R DL

- Correct operation has been confirmed for DVD-R DL discs (Ver. 3.0 / 2 x, 4 x) produced by the following manufacturers: Mitsubishi Kagaku Media, Verbatim (as of March 2005).

About DualDisc playback

A DualDisc is a new two -sided disc, one side of which contains DVD content -video, audio, etc. -while the other side contains non-DVD content such as digital audio material.

The non-DVD, audio side of the disc is not compliant with the CD Audio specification and therefore may not play.

It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.

The DVD side of a DualDisc plays in this product. DVD-Audio content will not play.

For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

Other disc compatibility

In addition to DVD, this recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD (and DVD), may be in an unplayable format - see below for further compatibility information.

Audio CD CD-R CD-RW Video CD Super Video CD (Super VCD)

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Readable formats: CD-Audio, Video CD/ Super VCD, ISO 9660 CD-ROM* containing MP3, WMA, JPEG or DivX files.
  ** ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD-Audio and Video CD/Super VCD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 32 kHz, 44.1 kHz or 48 kHz
- Bit-rates: Any (128 Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback:Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8*(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management)[1] file playback: No
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files - do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player for Windows® XP, Windows Media® Player 9 or Windows Media® Player 10 series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

DivX video compatibility

DivX is a compressed digital video format created by the DivX® video codec from DivX, Inc. This recorder can play DivX video files burned on CD-R/RW/ROM discs. Keeping the same terminology as DVD-Video, individual DivX video files are called "Titles." When naming files/titles on a CD-R/RW disc prior to burning, keep in mind that by default they will be played in alphabetical order.

- Official DivX® Certified product.
- Plays all versions of DivX® video (including DivX® 6) with standard playback of DivX® media files.
- File extensions: .avi and .divx (these must be used for the recorder to recognize DivX video files). *Note that all files with the .avi extension are recognized as MPEG4, but not all of these are necessarily DivX video files and therefore may not be playable on this recorder.*
- File structure: Up to 99 folders or 999 files.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.

DivX® VOD content

In order to play DivX VOD (video on demand)

Note

[1] DRM (digital rights management) copy protection is a technology designed to prevent unauthorized copying by restricting playback, etc. of compressed audio files on devices other the PC (or other recording equipment) used to record it. For detailed information, please see the instruction manuals or help files that came with your PC (or other WMA recording equipment) and/or software.

content on this recorder, you first need to register the recorder with your DivX VOD content provider. You do this by generating a DivX VOD registration code, which you submit to your provider.

Some DivX VOD content may only be playable a fixed number of times. When you load a disc containing this type of DivX VOD content, the remaining number of plays is shown on-screen and you then have the option of playing the disc (thereby using up one of the remaining plays), or stopping. If you load a disc that contains expired DivX VOD content (for example, content that has zero remaining plays), the message **Rental Expired** is displayed.

If your DivX VOD content allows an unlimited number of plays, then you may load the disc into your recorder and play the content as often as you like, and no message will be displayed.

Important

- DivX VOD content is protected by a DRM (Digital Rights Management) system. This restricts playback of content to specific, registered devices.
- If you load a disc that contains DivX VOD content not authorized for this recorder, the message **Authorization Error** is displayed and the content will not play.
- Resetting the recorder will not cause you to lose your registration code.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  ** File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:2:2, 4:2:0
- Horizontal resolution: 160 to 5120 pixels
- Vertical resolution: 120 to 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, .jpeg, .jpe, .jif, .jfif (must be used for the recorder to recognize JPEG files - do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time*(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

Dolby Digital

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

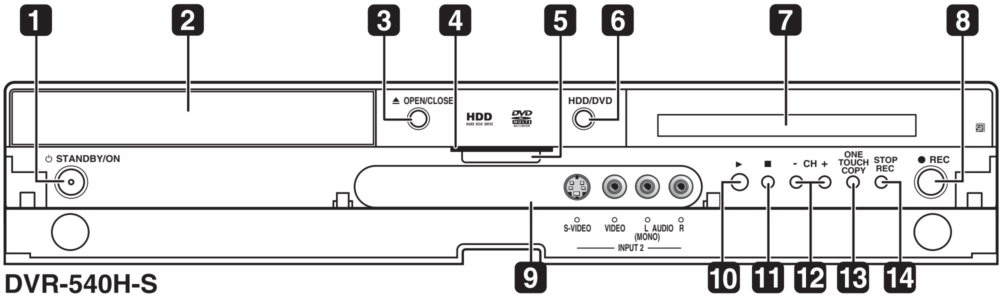
DTS

“DTS” and “DTS Digital Out” are registered trademarks of Digital Theater Systems, Inc.

8. PANEL FACILITIES

8.1 FRONT SECTION

Front panel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OPEN/CLOSE
HDD
DVD
HDD/DVD
STANDBY/ON
►
■
- CH +
ONE TOUCH COPY
STOP REC
● REC
S-VIDEO
VIDEO
L AUDIO R
(MONO)
INPUT 2
9
10
11
12
13
14

DVR-540H-S

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 Disc tray

3 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

4 HDD / DVD indicators
Indicator lights blue when the hard disk (HDD) is selected; orange when the DVD drive is selected.

5 PAUSE LIVE TV
Press to start recording the current TV channel, but with playback paused, effectively pausing the broadcast.

6 HDD/DVD
Press to switch between HDD and DVD for recording and playback.

7 Front panel display and IR remote sensor

8 ● REC
Press to start recording. Press repeatedly to set the recording time in 30 minute blocks.

9 Front panel inputs

10 ►
Press to start or restart playback.

11 ■
Press to stop playback.

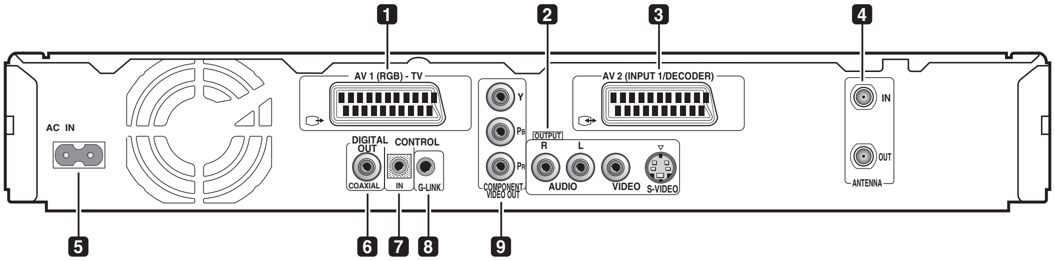
12 CH +/–
Use to change channels, skip chapters/ tracks, etc.

13 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

14 STOP REC
Press to stop recording.

8.2 REAR PANEL and FRONT PANEL section

Rear panel


1
2
3
4
AV 1 (RGB) - TV
AV 2 (INPUT 1/DECODER)
AC IN
DIGITAL OUT
CONTROL
COAXIAL
IN
G-LINK
Y
PB
PR
COMPONENT VIDEO OUT
OUTPUT
R
L
AUDIO
VIDEO
S-VIDEO
IN
OUT
ANTENNA
5
6
7
8
9

1 AV1(RGB)-TV AV connector
Audio/video output SCART-type AV connector for connecting to a TV or other equipment with a SCART connector. The video output is switchable between video, S-video and RGB.

2 OUTPUT
Stereo analog audio, video and S-video outputs for connection to a TV or AV amplifier/receiver.

3 AV2(INPUT 1/DECODER) AV connector
Audio/video input/output SCART-type AV connector for connecting to a VCR, or other equipment with a SCART connector. The input accepts video, S-video and RGB.

4 ANTENNA IN (RF IN)/OUT
Connect your TV antenna to the **ANTENNA IN (RF IN)** jack. The signal is passed through to the **ANTENNA OUT** jack for connection to your TV.

5 AC IN – Power inlet

6 DIGITAL AUDIO OUT
Coaxial digital audio jack for connecting to an AV amplifier/receiver, Dolby Digital/DTS/MPEG decoder or other equipment with a digital input.

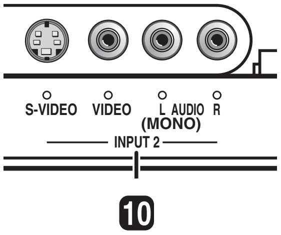
7 CONTROL IN
Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer SR mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

8 G-LINK™
Use to connect the supplied G-LINK™ cable to enable GUIDE Plus+™ to control an external satellite receiver, etc.

9 COMPONENT VIDEO OUT
A high-quality video output for connecting to a TV or monitor with a component video input.

Front panel connections

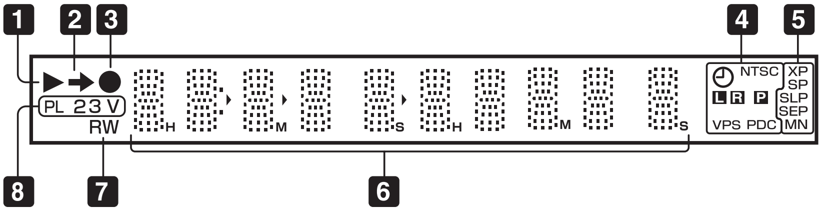
On the front panel a flip-down cover hides more connections.


S-VIDEO
VIDEO
L AUDIO R
(MONO)
INPUT 2
10

10 INPUT 2
Audio/video input (stereo analog audio; composite and S-video video), especially suitable for camcorders, game consoles, portable audio, etc.

8.3 DISPLAY

Display



1 ▶
Lights during playback; blinks when playback is paused.

2 ➡
Lights when copying.

3 ●
Lights during recording; blinks when recording is paused.

4 ⏲
Lights when a timer recording has been set. (Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable.)

NTSC
Lights when the video output signal format is NTSC.

🅻 🆁
Indicates which channels of a bilingual broadcast are recorded.

🅿
Lights when the component video output is set to progressive scan.

VPS / PDC
Lights when receiving a VPS/PDC broadcast during a VPS/PDC-enabled timer recording.

5 Recording quality indicators

XP
Lights when the recording mode is set to **XP** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP / SLP
Lights when the recording mode is set to **LP** (long play) or **SLP** (super-long play).

EP / SEP
Lights when the recording mode is set to **EP** (extended play) or **SEP** (super-extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

6 Character display

7 R / RW
Lights when a recordable DVD-R or DVD-RW disc is loaded.

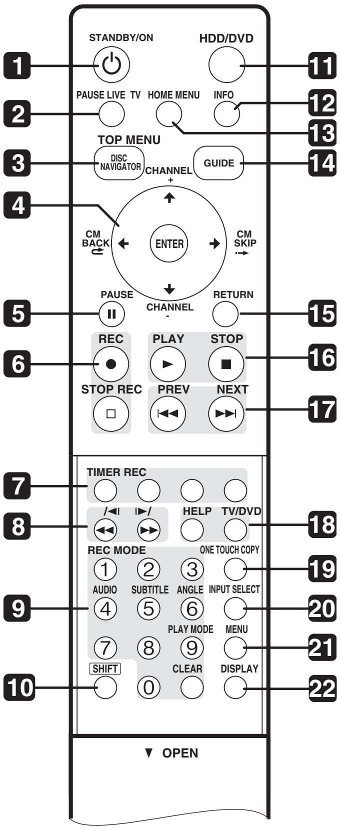
8 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

V
Lights when an unfinalized Video mode disc is loaded.

8.4 REMOTE CONTROL

Remote control


STANDBY/ON
HDD/DVD
PAUSE LIVE TV
HOME MENU
INFO
TOP MENU
DISC NAVIGATOR
CHANNEL +
GUIDE
CM BACK
ENTER
CM SKIP
PAUSE
CHANNEL -
RETURN
REC
PLAY
STOP
STOP REC
PREV
NEXT
TIMER REC
HELP
TV/DVD
REC MODE
ONE TOUCH COPY
1
2
3
AUDIO
SUBTITLE
ANGLE
INPUT SELECT
4
5
6
PLAY MODE
MENU
7
8
9
SHIFT
CLEAR
DISPLAY
0
OPEN
1
2
3
4
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1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 PAUSE LIVE TV
Press to start recording the current TV channel, but with playback paused, effectively pausing the broadcast.

3 DISC NAVIGATOR/ TOP MENU
Press to display the Disc Navigator screen, or the top menu if a DVD-Video or finalized DVD-R/RW (Video) disc is loaded.

4 ↑/↓/←/→ and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

CM BACK (commercial back)
Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP (commercial skip)
Press repeatedly to skip progressively forward through the audio or video playing.

CHANNEL +/–
Press to change the channel of the built-in TV tuner.

5 ❚❚ PAUSE
Press to pause playback or recording.

6 Recording controls

● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

When the red action button is visible in a GUIDE Plus+™ screen, use for One-Button-Record.

STOP REC
Press to stop recording.

7 GUIDE Plus+™ Action buttons
When in the GUIDE Plus+™ system, these buttons act as the Red, Green, Yellow and Blue Action buttons (the functions of these buttons change according to the GUIDE Plus+™ Area.

TIMER REC
Hold **SHIFT** and press to set a timer recording from the GUIDE Plus+™ system.

8 ◄◄ ►►
Press to start reverse or forward scanning. Press again to change the speed.

◄II/◄I I►/II►
While paused, press and hold to start slow-motion playback. Press repeatedly to change the playback speed.

While paused, press to advance a single frame in either direction.

When GUIDE Plus+™ is displayed, use to display the previous/next day.

9 Number buttons, CLEAR
Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

Use **CLEAR** to clear an entry and start again.

REC MODE
Hold **SHIFT** and press repeatedly to change the recording mode (picture quality).

AUDIO
Hold **SHIFT** and press to change the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE
Hold **SHIFT** and press to display/change the subtitles included in multilingual DVD-Video discs.

ANGLE
Hold **SHIFT** and press to switch camera angles on discs with multi-angle scenes.

PLAY MODE
Hold **SHIFT** and press to change the play mode (search, repeat, program play, etc.)

10 SHIFT
Use to access functions on the remote printed in green.

11 HDD/DVD
Press to select the hard disk (HDD) or DVD for recording and playback.

12 INFO
Press to see additional information for the highlighted item in GUIDE Plus+™.

13 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

14 GUIDE
Press to display the GUIDE Plus+™ screen; press again to exit.

15 RETURN
Press to go back one level in the on-screen menu or display.

16 ► PLAY
Press to start playback.

■ STOP
Press to stop playback.

17 I◄◄ ►►I
Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

When GUIDE Plus+™ is displayed, use to display the previous/next page.

18 HELP
Press for help on how to use the current GUI screen.

TV/DVD
Press to switch between 'TV mode', in which you get the picture and sound from the TV's tuner, and 'DVD mode', in which you get picture and sound from the recorder's tuner (or an external input).

19 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

20 INPUT SELECT
Press to change the input to use for recording.

21 MENU
Press to display the disc menu if a DVD-Video, finalized DVD-R/-RW or finalized DVD+R/+RW disc is loaded.

When in the GUIDE Plus+™ system, use to jump directly to the Menu bar.

22 DISPLAY
Displays/changes the on-screen information displays.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	Adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc Type2	——— (*)	Diagnosis (ID data setting)
Flexible Cable (35P)	GGD1478	Diagnosis of MAIN Assy
4P Power Cable	VKP2291	Extension of HDD
Jig for LD Power Adjustment	GGF1559	LD Power Adjustment
FFC Cable (10P)	GGD1477	LD Power Adjustment
CD-ROM Test Disc	GGV1054	LD Power Adjustment
DVD Dual Layer Test Disc	GGV1036	LD Power Adjustment

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

■ Lubricants and Glues list

Name	Lubricants and Glues No.	Remarks
Hanarl	GEM1041	refer to "2.3 FRONT PANEL SECTION"

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008